

# THE IRON AGE

A Review of the Hardware, Iron, Machinery and Metal Trades.

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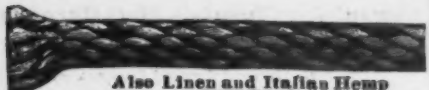
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# THE IRON AGE

New York, Thursday, January 24, 1907.

## The Ferracute Machine Company's Plant.

About three years ago the works of the Ferracute Machine Company, at Bridgeton, N. J., were totally destroyed by fire in a little more than an hour. The gradual evolution which has since taken place with the substitution of new permanent structures for the first temporary quarters has resulted in the present model plant, which was practically completed some little time ago, but still lacks the installing of a few pieces of equipment.

The products identified with the name "Ferracute" are so well known that it is scarcely necessary to enumerate them. In fact, it would require too much space to do so completely, but in general they include presses and

visually driven by one and sometimes two electric motors. These applications of motor drive are mostly to be found in the machine shop, an interior view of which is given in Fig. 1, and will be referred to later on, but as a logical beginning the plant as a whole should be considered.

The site is adjacent to the tracks of the Pennsylvania Railroad Company's West Jersey & Seashore branch, and spurs from the latter are laid beside the buildings, one of them terminating in the machine shop. Over these the larger part of the raw material is received, and the finished product shipped. There is also nearby a small lake affording a convenient source of water for general



Fig. 1.—A View Looking East in the Main Bay of the Machine Shop.

dies for shearing, cutting, punching, bending, forming, embossing, coining, drawing, deepening, broaching, &c., bar and sheet metals, paper, leather, cloth and other materials. The machines are all of original design and are built for all kinds of work produced by any of the processes mentioned. In general the larger presses, of which a wide range of sizes and capacities is made, have assembled rather than single piece frames, the two sides and top cross members and beds being separate. With a stock of comparatively few patterns, therefore, it is possible to quickly procure the parts for a press of almost any size within the limits undertaken.

All that may be said of any modern plant applies to the new works, but if one feature were to be separated from the others as perhaps the most interesting to the average visitor it would undoubtedly be the driving of tools. No line shafts are used, and every tool is indi-

purposes other than drinking. The drinking water is obtained from a well on the grounds.

The arrangement of the buildings will be best understood from the plan given in Fig. 2. The office, locker room, forge shop and machine shop are in separate buildings. The pattern shop, pattern storage, carpenter shop, engine room and boiler room are located end to end in one building 35 ft. wide by 190 ft. long, these having lengths of 52, 52, 32, 24 and 30 ft., respectively, in the order named. The drafting room, located in the office building, looks out upon the adjacent end of this building, which contains the pattern shop, the two being conveniently near together for conferences with regard to the closely allied work of each department.

In the drafting room will be found one of the first features of particular interest to the seeker after new things. This is the use of a special design of drawing

board, the invention of Oberlin Smith, president of the company. The boards are about 4 x 6 ft., and near the four corners are supported by pivoted struts, which engage, after the manner of pawls with ratchets, in vertical racks on the supporting standards. The legs are castings, one for each end, tied together by long bars. On one of these is mounted the cabinet for instruments and draftsman's equipment, which is so arranged that it may be slid to any position lengthwise of the desk. To raise or lower the table, clamping nuts at the ends are loosened and by manipulating one or both of the long horizontal rods at the front and back of the table the corresponding edge may be raised or lowered, and by this step by step adjustment the required height and desired inclination of the table are obtained.

The pattern shop contains the usual quota of wood-working machines, and each is individually driven by a motor. This allows any machine to be used without running any other, and eliminates all overhead belts, so that the room is unusually light, as will be seen from the interior view, Fig. 3. The lighting is further improved by painting all the machines a comparatively light color. The equipment in the pattern shop includes an Oliver

reciprocating engine which drove the old plant. Each turbine consumes only about 44 per cent. of the steam formerly taken by the reciprocating engine of the same power, which, however, was only an ordinary "high speed" engine. Even better consumption is expected after the condensers are installed. When all four turbo-generators are in position they will be connected in pairs to the two condensers to be later installed in the boiler room, and it will be arranged so that any one, two or three of the turbines may be operated condensing and the remainder noncondensing. At present the exhaust steam is being used in the heating system. The engine room contains also the switchboard controlling the distribution of current about the works.

Even in the forge shop overhead encumbrances which would obstruct light have been avoided, as shown in Fig. 4. This building is about 30 x 50 ft. in size and contains five Buffalo forges of the down draft type, with underground connections from a blower for the blast, and an induced draft fan for withdrawing the smoke; a tempering furnace, made by the American Gas Furnace Company; two annealing furnaces of home construction, a Bell steam hammer, operating an 850-lb. hammer, and a

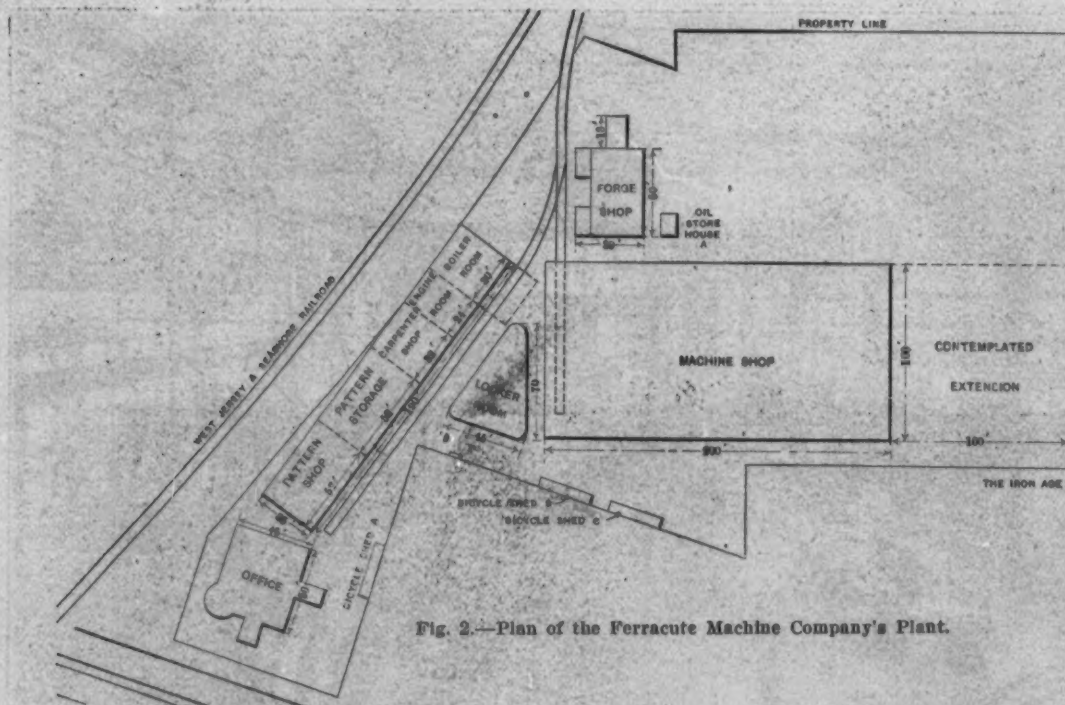


Fig. 2.—Plan of the Ferracute Machine Company's Plant.

universal saw table, an Oliver joiner, an Atlantic band saw, a Fay & Egan drill, a drying kiln, lockers, toilet and glue heaters. The pattern storage is next to the pattern shop, and beyond it is the carpenter shop, principally used for making crates and shooks in which finished material is shipped.

The boiler room contains a 250-hp. Heine water tube boiler, with room for an additional one of the same size, boiler feed pumps and the necessary piping, with connections ready for the installation of condensers, for the steam turbines in the engine room. The boiler room floor level is about 8 ft. below the outside ground level at the side of the boiler house, where the switch from the railroad passes. Beneath the railroad tracks are coal pockets into which the coal is dumped directly from the cars as received. Opening into the boiler room, directly opposite the fronts of the boilers, are chutes so that the coal is deposited on the firing floor without further handling.

In the engine room there are now installed two 100-hp. Curtis steam turbines direct connected to 75-kw. General Electric direct current dynamos, generating current at 225 volts, at which pressure it is used throughout for the power and lighting systems. Space is left for two more such units. It is a remarkable fact that the economy of the steam turbines, now operating noncondensing, is enormously better than that of the 100-hp.

hand traveling crane of 5 tons capacity, not a common feature in the equipment of a forge shop of its size. This crane is found very useful in handling materials for repairs and some of the heavier work for the steam hammer. At one end of the forge shop there is an extension to the building, containing racks for stock. The arrangement is such that the material may be received at the outside end and slid into the racks, those on one side holding square, round and other shapes of mild steel and those on the other iron. There is a trolley for handling the heavier pieces of stock, on which they may be brought out from the stockroom to be taken up by the crane in the forge shop. The company does not attempt to make heavy forgings, but only such lighter ones as enter into the construction of its product. Heavy forgings and all castings are purchased from outside concerns.

The machine shop is a building 100 ft. wide and at present 200 ft. long, with a temporary wall at the west end, where it will later be extended to 300 ft. total length. The side walls are of brick and the roof burned tile and wire-protected glass on a steel frame. The temporary end wall is of corrugated iron bolted to the steel framework so that it may be easily removed when the addition is built. This shop is of other than the commonly employed construction in that the roof is continuous, entirely without monitors or modified form on account of



the side bays. The height of the eaves is 17 ft., and the height at the apex of the roof 50 ft. The roof trusses are supported on columns as well as at the ends, these columns being placed in rows 25 ft. from the side walls and also affording support for the cranes. In general the middle bay thus formed is used for the larger tools and most of the erecting work. The side bays, one of which is shown in Fig. 5, accommodate smaller tools and the stock room, tool room and die room, all as indicated on the plan of the machine shop given in Fig. 6.

Each side bay is served by a 5-ton Niles electric travel-

In connection with the key to the machines in this shop, given in Fig. 6, it should be explained that B designates only vertical boring mills; L turret as well as engine lathes; D radial drills and horizontal boring machines, as well as ordinary uprights, and G all kinds of grinding machines and not simply tool grinders. In general the large boring mills and planers are in the middle bay, the largest being toward the east end. The smaller tools are in the side bays, the smaller ones toward the east end.

Nineteen tools are used for boring work, including

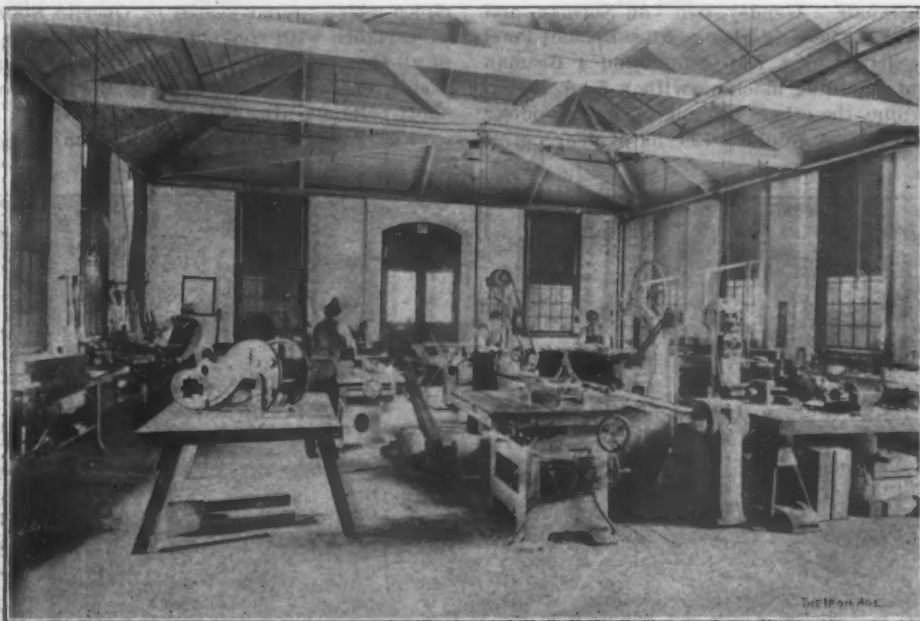


Fig. 3.—A View in the Pattern Shop.

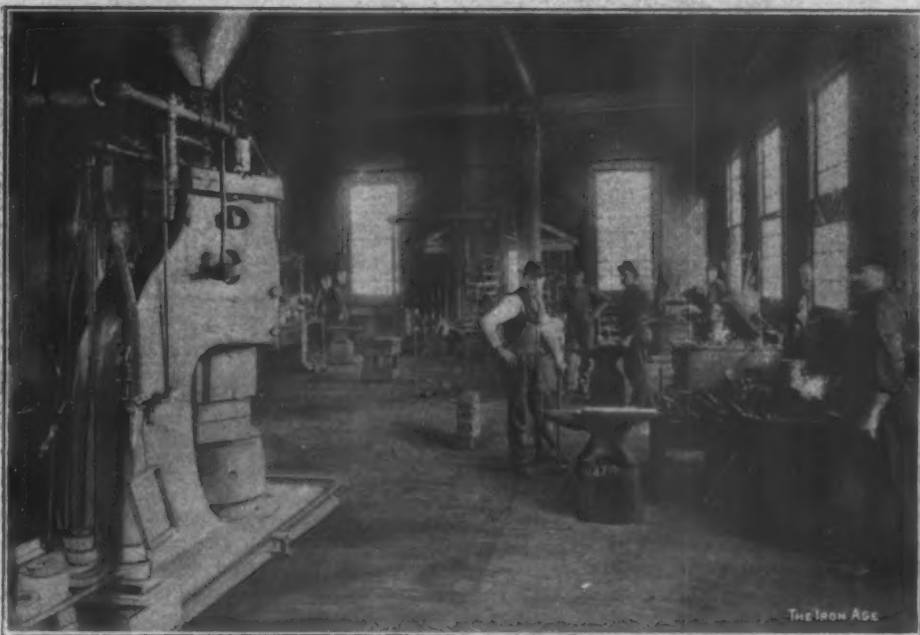


Fig. 4.—A View in the Forge Shop.

ing crane, and the middle bay by one 20-ton Niles electric crane and a 6-ton hand crane. There will also shortly be installed a 10-ton electric crane from Pawling & Harnischfeger, which will largely take the place of the hand crane, although this will still be left in position. It is now used principally at the east or receiving end of the machine shop for handling castings from trucks in which they are brought from the foundry, to the floor of the shop. Here the castings are cleaned and filed, and are progressively handled toward the other end of the shop during the machining processes. At the west or erecting end the spur from the Pennsylvania Railroad enters, and here finished machines are handled by the crane to cars ready for shipping.

radial drills, upright drills, horizontal boring machines and vertical boring mills. The largest among these are a 62-in. Bullard boring mill, driven by a 7-hp. motor; a 40-in. Dawson mill, driven by a 5-hp. motor, and a 30-in. Niles mill with 5-hp. motor. The larger drill presses include a 6-ft. Pond radial with a 10-hp. motor; Beaman & Smith upright with a 4-hp. motor; two 4-ft. Baush radial drills with 5-hp. motors; a New England drill press, 5-hp. motor; two Binsse horizontal boring machines, one with a 5 and one with a 2-hp. motor, and a Fitchburg upright drill with a 3-hp. motor.

Of various styles of grinders there are nine. The largest of these is a Landis machine with a 72-in. bed, driven by a 10-hp. motor, and another of same make has

14-in. wheels and is driven by a 3-hp. motor. In addition there are Bridgeport, Western and B. & S. grinders. One Dill slotter is driven by a 5-hp. motor. Of lathes there are about 25, ranging in size from those requiring 1 to those requiring 10-hp. motors for their drive. A 60-in. Wood & Light lathe was made capable of that swing by increasing it from its original capacity of 42 in. swing. There is also a 32-in. Lodge & Shipley lathe and a 30-in. Reed lathe. Two lathes of the company's own manufacture are used in the tool room. The other lathes range in size from 27 and 24 in. down. There is also a Jones & Lamson and a Gray turret lathe. Among milling machines are a Cincinnati, a Hendey, two Van Norman, and a Becker-Brainard. There is also a Niles-Bement-Pond milling machine driven by a 7-hp. motor and a Beaman & Smith horizontal milling machine with a 5-hp. motor. In all there are nine, the others ranging in driving power from 6-hp. down to 2. A Gould & Eberhardt gear cutter

slightly if at all altered from the form it took with the original belt drive. The bracket is placed, for example, on the large milling machines near the top at one side of the column, and the tension of the belt is regulated by an adjustable leg supporting the outer end of the swinging bracket resting in a socket on the machine.

Belt connections from the motors to the machines are preferred to chain or gear connections. Although there are many examples of both of the latter, most of the latest arrangements have been for belt drive. Short belts, where necessary, very high belt speeds and loose-running endless belts without rivets or lacings are principles which are advocated by Oberlin Smith, and rather at variance with commonly accepted ideas. The success of all the applications of this sort to be found in this shop seems to substantially refute the old contention that short belts are always bad in practice.

Fig. 7 shows a typical application of motor drive, be-



Fig. 5.—Another View in the Machine Shop, Looking from the Northeast Corner.

is also installed, capable of cutting gears up to 72 in. in diameter. Various slotters were furnished by Betts, Garvin and New Haven machine tool companies.

Among the largest planers are a 48 x 48 in. x 12 ft. Pond, with a 10-hp. motor, and a 42 x 42 in. x 10 ft. Pond, with a 7-hp. motor. A Woodward & Powell planer of about the same size is driven by a 7-hp. motor. Other planers include Pease and Gray makes. In all there are six, the horsepower ranging from 5 to 10. There are seven shapers, these being driven by motors ranging from 5 to 2 hp., and representing the makes of Steptoe, Stockbridge, Walker, Smith & Mills, and Gould & Eberhardt. As before stated, every tool in the plant is individually driven, and some have two motors, a separate one being used, for example, in feeding or traveling the tool carriage or work table. Altogether there are 115 motors used on cranes and tools, representing an aggregate of 523 hp.

Among the several interesting applications of motor drive in the machine shop are a number on which the motors are mounted on a vertically adjustable bracket, a belt being used for the drive, and the machine but very

ing the latest method adopted for lathes. It is a Lodge & Shipley lathe, with the motor mounted on a swinging bracket and connected by a short belt. The bracket is hinged at the rear for tightening the belt, and the forward edge is sustained by a screw jack bolt. A variable speed 3 to 1 Northern motor is used, and the speed range is further extended by the change gears on the lathe. Fig. 8 serves the double purpose of illustrating a motor application and an example of the company's product. This, known as a press PG3, is not remarkable for its size, being, if anything, rather smaller than the average press built here, but it represents a type that is made in large quantities. In this case also the motor is mounted on a swinging bracket, this being pivoted on the center line and behind the machine, with a screw jack used to support the outer edge and regulate the belt tension. The same system is used upon the larger presses built by the company, some of which give 500 tons ram pressure and weigh nearly 50 tons.

The ventilating and heating of the machine shop are furnished in part by an overhead Sturtevant system supplied by a steam driven fan mounted overhead near one



end of the shop. The heating is augmented by steam coils placed along the columns at one side of the middle bay. It may eventually prove best to double the present system of indirect steam heating and remove the direct radiator coils.

Fireproof construction in the machine shop is carried

the large area of glass in the roof makes the shop somewhat oppressively warm. To remedy this, fireproofed white shades were placed under the skylights, which may be drawn over to shade the part beneath. The natural light from the windows and skylights and the placing of the building almost east and west with reference

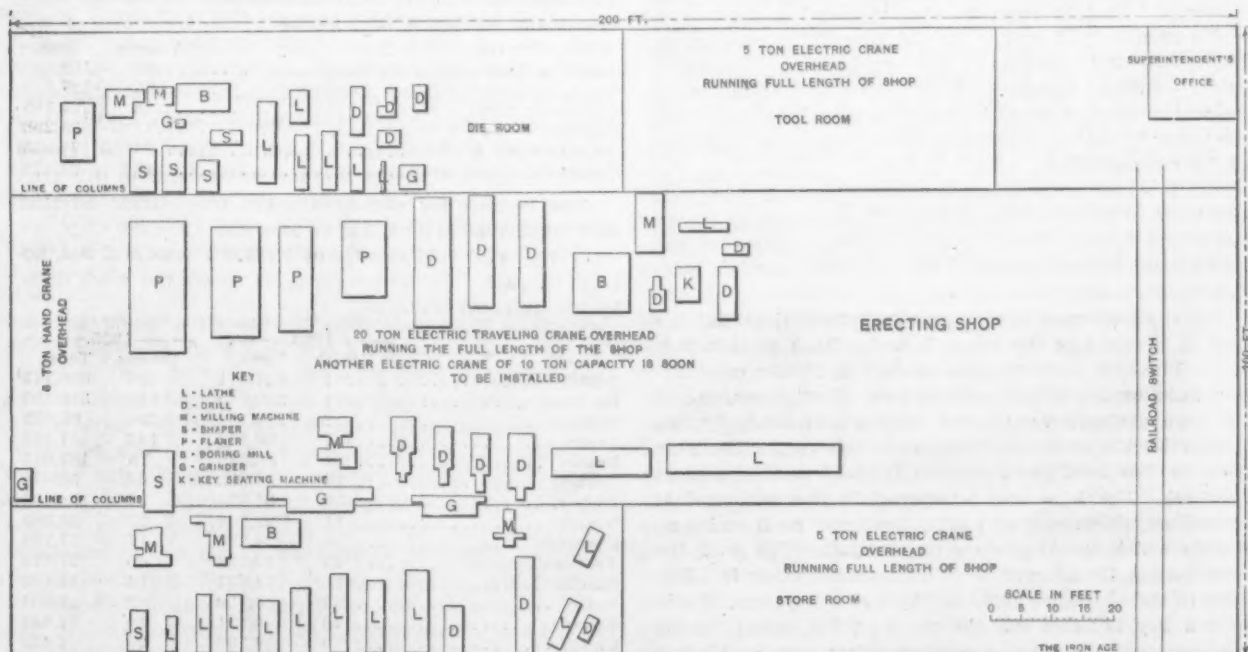


Fig. 6.—Plan of the Machine Shop, Showing the Layout of the Equipment.

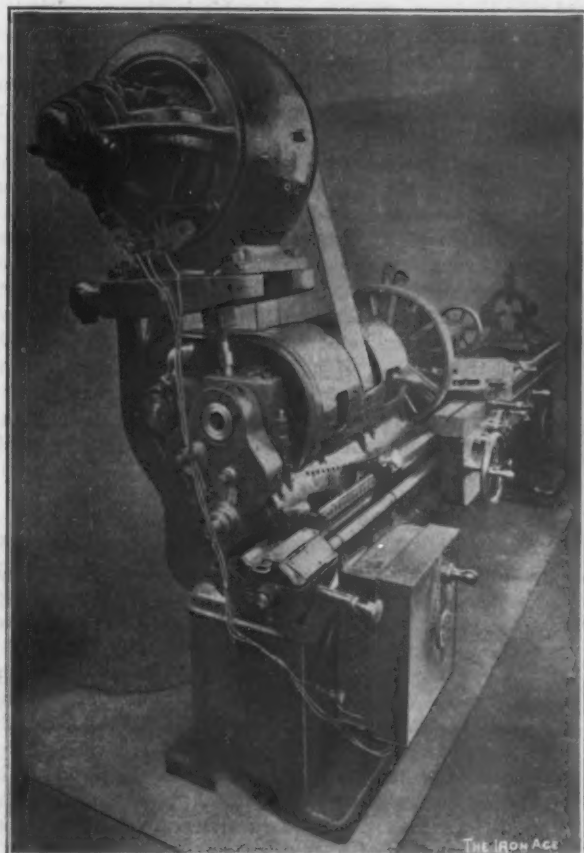


Fig. 7.—A Typical Motor Drive as Applied to a Lathe.

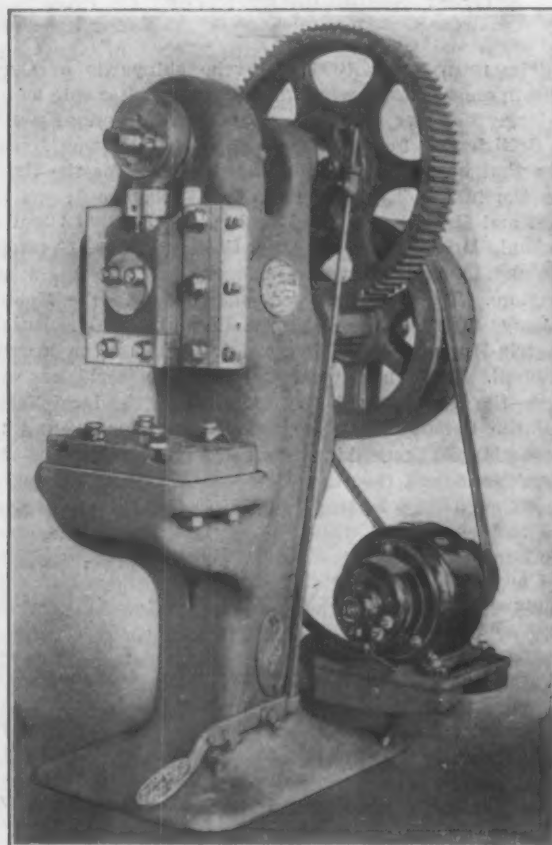


Fig. 8.—An Example of the Company's Product—A Press PG3.

even to the steel window frames and sashes. The shop is unusually well lighted by the windows at the side and especially by skylights in the roof. From the ridge of the roof its entire length, extending down 38 ft., covering one-half of the middle bay, is a glass skylight, which has very nearly northern exposure. On the opposite side of the ridge the skylight is also extended downward about 8 ft. In the summer time it has been found that

to its length, have resulted very favorably. There is almost no part of the shop that is not reached at some time during the day by direct sunlight.

The plant has four telephones connected with the public telephone service, and in addition an independent works telephone system communicating with all of the departments, and having 16 stations.

The top or attic floor of the office is fitted up for

photographic purposes, with a dark room and camera for copying, blue printing, frames, &c., and provisions for washing and drying prints. In the basement of the office building is a storage room and shelves for samples of work for which dies have been made. Another small building contains the washroom and lockers and a little assembly room, where the workmen may hold meetings. In this room is also provided a table and copies of technical papers for the use of the employees. There are 200 lockers in the washroom. The wash basins provide a separate jet for each man in addition to the water common to all in the steel trough beneath, and the water is heated by steam, regulated by a thermometer at the rinsing valves.

Oil is stored in a separate building entirely fireproof, and built of brick and concrete. It is supported on an angle iron frame, and is in a measure portable, so that if it should become desirable to move it to another location it can easily be done.

All the keys used in the various parts of the plant are kept in a closet in the office, locked with a combination lock. The lock on this closet, as well as all the combination locks on the lockers and various other places, are of the type designed by Oberlin Smith, and made by the Corbin Lock Company. This lock, known as the star point keyless lock, was described in *The Iron Age* August 25, 1904. The lock may be opened in the dark and is exceedingly ingenious and safe, inasmuch as it emits no sounds which would guide a person unfamiliar with the combination to discover what that combination is. The keys in the closet are given out by a check system. Whenever a key is taken out the name of the person taking the key is hung on the corresponding peg, so that it is known at all times in whose hands the keys are held.

### A Great Shipbuilding Record in 1906.

The returns for 1906 from the shipyards of Great Britain show a total which make the year notable as one of large tonnages and large ships. In its annual review of British and foreign shipbuilding the *Glasgow Herald* says that increases of output are reported for the Clyde, the Forth, the Tay, the Dee, the Tyne, the Wear, the Tees and Hartlepoons, the Humber, the English Channel, Ireland, British Colonies, the United States, Germany, Holland, Japan, Norway, Denmark, Sweden, Spain and Belgium. The only decreases shown are in the Mersey-Solway district, the Thames, France, Italy, Russia, Austria-Hungary and China, and in each case the decrease is small. The four largest warships the world has ever seen—the Dreadnought, the Agamemnon, the Lord Nelson and the Satsuma (the last named in Japan)—and the three largest merchant steamers—the Lusitania, the Mauretania and the Adriatic—were all launched within the 12 months. The two Cunarders and the Dreadnought are turbine vessels, while the Adriatic, the Agamemnon, the Lord Nelson and the Satsuma are to have reciprocating engines. The total output at the shipyards of the world, as returned for the annual statistics, was 2792 vessels, of 3,353,807 tons and 3,158,664 i.h.p. This is an increase over 1905 of 399 vessels, 409,877 tons, and 689,159 hp. The following table shows the work of the year in the United Kingdom, the Colonies and foreign countries, together with the figures for 1905:

	1906.		1905.	
	Vessels.	Tons.	Vessels.	Tons.
Scotland .....	541	658,830	412	587,932
England .....	882	1,193,881	793	1,073,309
Ireland .....	28	149,860	31	144,727
United Kingdom.....	1,421	2,002,571	1,236	1,805,968
Colonial .....	109	28,782	64	10,610
Foreign .....	1,262	1,322,451	1,093	1,127,352
Totals.....	2,792	3,353,807	2,393	2,943,930

The six British districts and foreign countries which lead in shipbuilding are the same for 1906 as for 1905, and the rank is the same, except that Germany goes from fifth to fourth place in tonnage. It was third in 1904 and fell to fifth in 1905. The figures are as follows:

	Vessels.	Tons.	I.h.p.
The Clyde.....	372	598,841	606,600
United States.....	207	464,671	260,761
The Tyne.....	159	411,569	375,705
Germany .....	361	360,980	326,998
The Wear.....	98	334,572	222,811
Tees and Hartlepoons.....	88	292,344	144,750

The output of the American Shipbuilding Company, with six active yards in 1906, compares as follows with that of the leading British yards:

	Vessels.	Tons.
American Shipbuilding Company.....	34	198,535
Swan, Hunter & Wigham Richardson.....	25	117,943
William Doxford & Sons.....	25	99,765
Harland & Wolff.....	11	83,238
William Gray & Co.....	24	74,933
Workman, Clark & Co.....	13	65,478

The records for countries apart from Great Britain show 1262 vessels of 1,322,454 tons and 1,294,286 i.h.p., as compared with 1093 vessels of 1,127,352 tons and 962,608 i.h.p. in 1905. The following table shows the work done by the different countries:

	1906.		1905.	
	Vessels.	Tons.	Vessels.	Tons.
United States.....	207	464,671	146	368,775
Germany .....	361	360,980	310	312,400
Holland .....	222	116,192	196	92,522
Japan .....	137	96,132	146	47,458
France .....	84	85,348	78	101,073
Norway .....	76	50,023	64	52,670
Italy .....	55	37,854	22	58,193
Russia .....	11	25,868	23	25,985
Denmark .....	16	24,225	17	17,124
Austria-Hungary .....	42	19,738	45	27,675
Sweden .....	21	14,697	14	12,153
Spain .....	3	9,139	2	2,861
Belgium .....	18	6,991	10	2,034
China .....	9	4,596	20	6,429
Totals.....	1,262	1,322,454	1,093	1,127,352

Indications are that Great Britain's tonnage for 1907 will not equal that for 1906. On the Clyde the falling off in new business was very noticeable in the second half of 1906, but lately there has been some improvement, and the work on hand is more than normal. It is pointed out that in order to obtain more work builders must reduce prices, and this they cannot do until the cost of production is reduced. The other way out of the difficulty—an improvement in freights—is not yet quite at hand. Many of the contracts which were executed during 1906 were placed by owners who had sold their previous vessels at high prices and then waited until rates touched bottom before placing further orders. The launching of the vessels thus ordered swelled the tonnage of the year, but the boats were not, as a matter of fact, all profitably employed immediately after being launched. This is now telling against the placing of additional orders. However, the trade of the whole world is expanding, the shipping of Europe especially is developing at an enormous rate, and there are vast accumulations of capital ready for investment in shipping enterprises.

The statistics of the Scotch Ironmasters' Association show that the output of Scotch pig iron in 1906 was 1,451,068 gross tons, an increase of 72,677 tons over 1905. Scotch foundries, iron rolling mills and steel works consumed 875,072 tons in 1906, as against 890,382 tons in 1905. The exports, coastwise and foreign, and shipments of about 6000 tons each year by rail to England made a total of 371,091 tons in 1906 and 310,555 tons in 1905. The stocks in Connal's stores declined from 15,593 tons at the close of 1905 to 5286 tons at the close of 1906, but stocks in makers' yards increased about 9000 tons, so that the net reduction was 1387 tons, the total stocks at the close of 1906 being 90,548 tons.

The preliminary statement of imports and exports of merchandise in the calendar year, 1906, issued by the Bureau of Statistics of the Department of Commerce and Labor last week, gives the grand total of outgoing shipments as \$1,798,107,955, and of incoming shipments as \$1,321,064,694. Both figures break all former records. The balance of trade in favor of the United States for 1906 was \$477,043,261. The imports in the year were \$141,920,144 larger than in 1905 and the exports were \$171,117,160 larger.



## New Publications.

### Der Aachener Huetten Aktien Verein—in Rothe Erde.

1846-1906. (The Aachen Company, at Rothe Erde.)

By W. Rabins. Published by Gustav Fischer, Jena.

Dr. Rabins of Leipzig in the course of studies on economic subjects had occasion to go over the records of one of Germany's famous steel works, those of Rothe Erde. In the light of data thus collected he tells the history of that enterprise as affected by the varying commercial and technical influences to which it was subjected, how it dragged through years of misery, and how its management took quick advantage of favoring conditions, and finally enjoyed many years of extraordinary prosperity.

Started in 1845, soon after the establishment of iron duties in 1844, a puddler mill was finished in 1847, with mills for rolling bars, sheets, rails and tires. The French Revolution of 1848, with its attendant disorganization of business caused a cessation of operations until 1853. Adverse conditions continued, and a reorganization was effected in 1864, followed in 1866 and 1867 by remodeling and doubling the mill, which was engaged chiefly in the manufacture of railroad material. Then the makers of Bessemer steel began to develop as serious competitors, but the boom in Germany, which followed the Franco-German War, carried along the enterprise, in spite of scarcity of labor and high prices of raw material. The Bessemer process was introduced in 1872-1873, building the plant during the boom period. Besides a defective blowing engine made it impossible to reach more than half of its rated capacity. In 1874 the capital stock was increased, but the fresh money did not even cover the losses which had followed the crash of May, 1873.

The company was loaded down with debt, and its plant was antiquated, with the exception of the Bessemer works, and the management was placed with Adolf Kirdorf and J. Magery, the former as commercial and the latter as technical director. They struggled along during the years of the depression to 1878, developing new outlets in shapes, and spending all available funds in remodeling the plant. They put in double puddling furnaces, introduced labor saving appliances, substituted three-high mills and increased the variety of sections rolled. In 1879-1880 the Bessemer plant was rebuilt, and a new 24-in. mill completed the technical reorganization of the works, nearly trebling the output. The production per man per annum was increased from 19 tons in 1874-1875 to 31 tons in 1880-1881. In the meantime raw materials in stock were converted into money, and creditors were paid. The company worked out of the hands of bankers, and in 1878-1879 paid its first dividend of 5 per cent.

Then came Thomas and Gilchrist with their invention of the basic Bessemer process, which revolutionized the German steel industry and made it what it is. The Rothe Erde works started with it in 1880 and completed a new steel plant in 1883, which was followed by an entirely new works in 1905. So rapid was the development that the first million tons of basic Bessemer steel had been made in 1890, the second million tons in 1895 and the third in 1898. The new steel works have a capacity of 475,000 tons per annum.

With all its success the company was in a precarious position from one point of view. It had no blast furnaces and no ore property, and at times had suffered severely from booms in pig iron and from combinations among the blast furnace operators. In 1892, therefore, the management acquired the furnaces and the ore property at Esch-Alzette, and thereafter steadily increased and consolidated its holdings of ore property in the Minette District. The second group of furnaces and its accompanying ore lands was acquired at Deutsch Oth in 1902, so that it controls 220,000,000 tons of ore.

In the meantime developments in the German coal industry had forced action in another direction. The coal syndicate was formed in 1893, and its operations threatened the future of the enterprise. Therefore what is practically a consolidation was arranged for in 1904 of the Aachen Verein, the Gelsenkirchen collieries and the Schalke collieries, blast furnaces and pipe shops. The

two latter concerns had an allotment of 8,698,000 tons of coal out of a total of 75,600,000 tons of the coal syndicate, the consumption of Rothe Erde being 660,000 tons of coke and 24,000 tons of coal annually. Schalke had two furnace plants at Gelsenkirchen and at Hochfeld-Duisburg. The effect of this consolidation is far reaching, not alone for the companies directly involved, but for the whole German coal and iron industry and the development of its syndicates.

Under the rules of the coal syndicate collieries which are owned by iron works need not account to the syndicate for the fuel supplied for consumption to the furnaces and mills, there being no restriction as to increase in such consumption. This is highly disadvantageous to those collieries which do not enjoy such alliances, and was a powerful motive for the great Gelsenkirchen colliery to enter the consolidation, although the right to supply the iron works in the consolidation does not take effect until the end of the present coal syndicate contract. Its participation in the coke syndicate amounted to 1,300,000 tons.

Schalke, while producing both coal and iron, had advantages through the fact that its principal furnace plant is supplied direct by wire rope tramway from one of the Gelsenkirchen shafts, and because one of its collieries can be operated more effectively in conjunction with an adjoining Gelsenkirchen mine. Rothe Erde, of course, secures its own supplies of coal and coke, and is independent of fluctuations in prices and of syndicate control.

The financial results of the Aachen Verein have been very satisfactory. Beginning with dividends of 5 per cent. in 1879-80, the returns to the stockholders were doubled in the next year, and then, from 1881-82, to and including 1890-91, the dividend was 25 per cent. annually, with the exception of 1887-88, when 17½ per cent. was distributed. In 1891-92 the return was 30 per cent., in the next three years 20 per cent., followed by 30 per cent. in 1895-96, 50 per cent. in 1896-97 and 1897-98, 40 per cent. in 1898-99 and 1899-1900, 25 per cent. in 1900-01, 20 per cent. in 1901-02, and 30 per cent. in 1902-03 and 1903-04. Since the introduction of the basic Bessemer process, the dividends have averaged 27.4 per cent. annually. The capital, which was 1,540,000 marks in 1882-83, was raised to 3,080,000 marks in 1890-91, to 4,500,000 marks in 1892-93, to 9,000,000 marks in 1898-99, and to 11,500,000 marks in 1903-04, the funded debt rising in the meantime from 201,500 marks to 3,000,800 marks. The reserve fund grew from 329,318 marks in 1882-83 to 5,101,812 marks in 1903-04. The consolidation has a total capital stock of 130,000,000 marks, in which Gelsenkirchen participates with 73.5 parts, Aachen, with 31 parts and Schalke with 25.5 parts.

Dr. Rabins closes his book with a chapter on the participation of the Aachen Verein in pools and syndicates, to which it has always been friendly, the commercial director, A. Kirdorf, having been one of the leading spirits in the formation of the German steel syndicate.

**The Engineering Index, Vol. IV.** Published by the *Engineering Magazine*, New York. Price, \$7.50.

The Association of Engineering Societies began the work of indexing current engineering literature under the direction of J. B. Johnson in 1883. In 1895 the *Engineering Magazine* took up the work, issuing volume II covering the years 1892 to 1895, in 1896. Volumes III and also volume IV covered successive 5-year periods. The fact that the volume just issued for 1901 to 1905, inclusive, makes a portly volume of over 1200 pages has probably led to the decision that hereafter the volumes will be published annually.

With the enormous growth of the engineering literature this has become a huge piece of work, the importance of which, when skillfully done, must continue to increase. So far as the particular enterprise before us is concerned, it is a question of accuracy and skill. We have placed ourselves in the position of one who was searching for information, and may state that the tests thus made give every indication that an enormous amount of conscientious and intelligent labor has been put into the volume before us. The whole system of catch words and of entries is admirably worked out.

## Handling Equipment for Structural Plants.

BY GEO. P. THOMAS.\*

Satisfactory crane and hoist arrangements form the most important as well as the most difficult problem in connection with a structural plant. No system, however elaborate and complete, that it is practicable to install will fully meet all the requirements. First cost, operating and maintenance cost and the arrangement of tools all directly affect the problem, and it can be solved in a practical and satisfactory way only by one thoroughly conversant with the requirements and familiar with all the operations performed upon the material to be handled. In a modern steel fabricating plant the arrangement of overhead cranes and hoists largely determines location of tools on the floor. In such a plant, schemed to have succeeding operations follow one another and be conveniently located in relation to each

times over piece by piece, the weight of these averaging from 200 to 1500 lb. It is also desirable to have facilities to handle material in bulk, probably in loads of about 10 tons. Installing cranes here capable of handling the maximum loads, but neglecting the multiplicity of light lifts that must be made, complicates rather than solves the problem. Investigation will show that fully 97 per cent. of the lifts range from 1500 to 2000 lb. in this particular part of the shop; the remaining 3 per cent. represents the handling in bulk. In a strictly modern plant cranes should be used principally for handling material locally and serving tools, and push cars or motor trucks for transporting material in and out or through the shop.

The handling of material for marking, shearing and punching is identical, and the same type of crane can be used for all these operations. It is almost impossible to calculate the number of lifts that cranes have to make, but it may be approximated. For example: In a shop having a capacity of about 1000 tons per month, or 40 tons per day, of ordinary riveted work, such as columns, plate girders, &c., assuming that 6 x 6 in. angles, 40 ft.

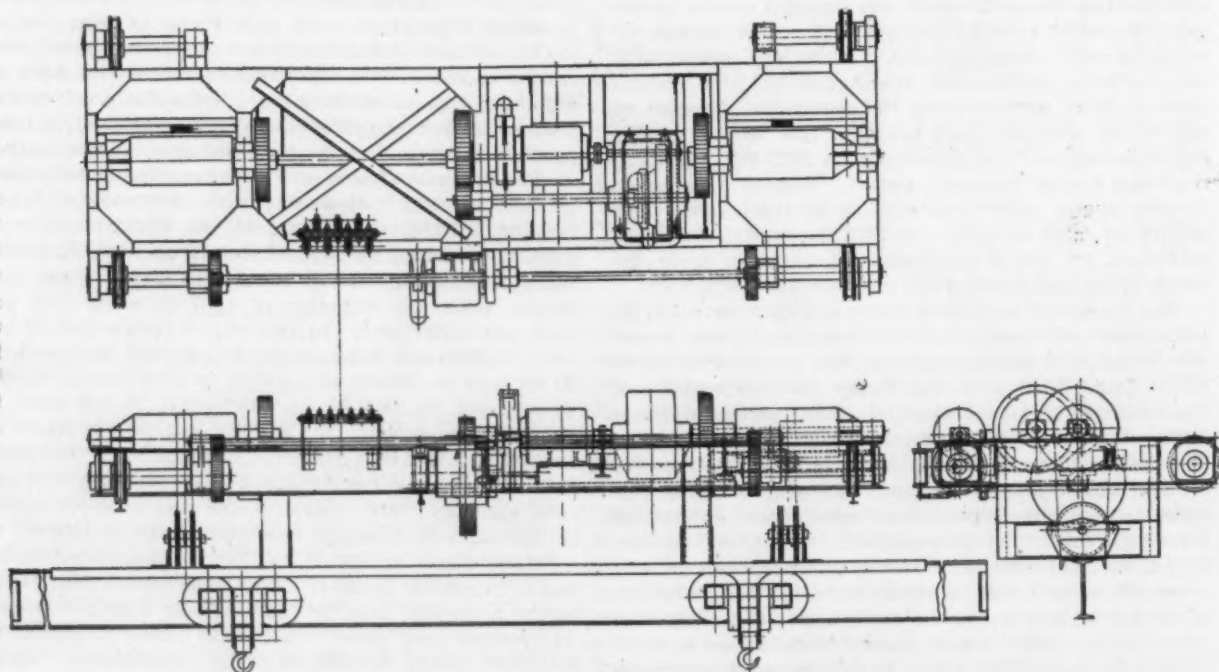


Fig. 1.—Type of Beam Hoist Crane Used in Structural Plants, Built by the Standard Bridge Tool Company.

other, it is difficult to devise a practically efficient system.

A shop may be equipped throughout with the latest improved machinery and tools and yet not produce results much better than an old and antiquated one if the facilities provided for handling material are faulty. Again, the shop may have the finest equipment and all kinds of facilities for quickly handling material and yet fail to give results, if too much refinement is attempted, entailing a heavy first cost and correspondingly large cost of operation and maintenance.

In many plants the cranes are arranged to permit transporting material in bulk or detail to any part of the shop, yet in a properly arranged shop need for such is exceptional. Steel to be fabricated must first be marked and sheared, then punched, and then stored until wanted by the assemblers. Never do these operations require transporting material any long distance. At the entering end especially the problem resolves itself into handling material in detail and promptly and efficiently serving tools. Handling material about is a secondary question, but it is of prime importance that the markers, punchers, assemblers, &c., be promptly served, as idle tools and workmen waiting for cranes surely affect the shop cost.

At the entering end of the shop is where most systems fail. Here the material must be handled a number of

long, are being handled, 125 pieces must be operated on and about 20,000 holes marked and punched. Assuming the material is brought in from the storage in 10-ton loads, there would be four loads in bulk. After the material is deposited on marking skids it can be handled by the markers, piece by piece, usually without cranes by means of pinch bars, the pieces being skidded into proper position for marking. For plates generally a crane must be used. Angles after being marked are sometimes simply pushed off the skids to blocks on the floor, to be picked up later by the crane or at once and delivered to skids serving the shears for the usual trimming. Here the process is practically repeated. Angle shears are usually provided with roller skids of same height as the lower blades, the rollers being in line with the blades, and storage space for the material provided from which pieces are skidded on rollers by hand if light, and by a pinch bar if too heavy. In the latter case a crane must be used for lifting the pieces from the rollers after operation. With heavy angles very little lifting in detail is required except to serve the shears, if suitable skids are provided and properly located. The value of properly arranged skids for marking, storing, &c., cannot be over-estimated.

Long or heavy pieces, especially plates, must be handled individually by cranes at least once for marking and also for trimming or shearing. In the average shop many pieces are handled by cranes that could easily be lifted

\* Standard Bridge Tool Company, Pittsburgh, Pa.



by hand, and the practice is one very hard to break up. In the punch shop, where pieces weighing 650 lb. must be lifted to roller tables by crane and picked up again after being punched, a plentiful supply of light cranes is indispensable.

Each of the above operations takes but a short time, and usually cranes are wanted simultaneously at different points. It should be the aim to avoid any delay on this score as much as possible. Operating on angles as mentioned above, one piece must be marked, sheared and punched nearly every four minutes, and about four or five lifts must be made for each piece. This is at the rate of over one lift per minute on the average. To mark and punch 20,000 holes about two men are required, according to the work, and six punching machines. Adding to this the operations on shears there are about 10 different operations that must be served by cranes. This gives an idea of the demands on cranes in this part of the shop. It is fair to say that in a poorly

the better one, as the gantry can be made to be operated in connection with the riveter. This places the entire control under one man, and the crew is not obliged to travel along over skids and other obstructions, while the furnace for heating rivets is always handy. Moreover, a stationary riveter undoubtedly drives better rivets than a suspended one, and the material being suspended from a low point, has little tendency to swing and is under better control. These are points in favor of the gantry; the chief objection to their general adoption is the first cost and the comparatively large floor space occupied.

The weak link in a shop equipped with transverse cranes is that it provides no means for carrying material forward except by cars on the floor (some shops are adopting motor cars for this purpose). Thus, to carry material forward, for even the shortest distance, it must be lifted by a crane and deposited on a car. The car is then pushed to its destination, and the material

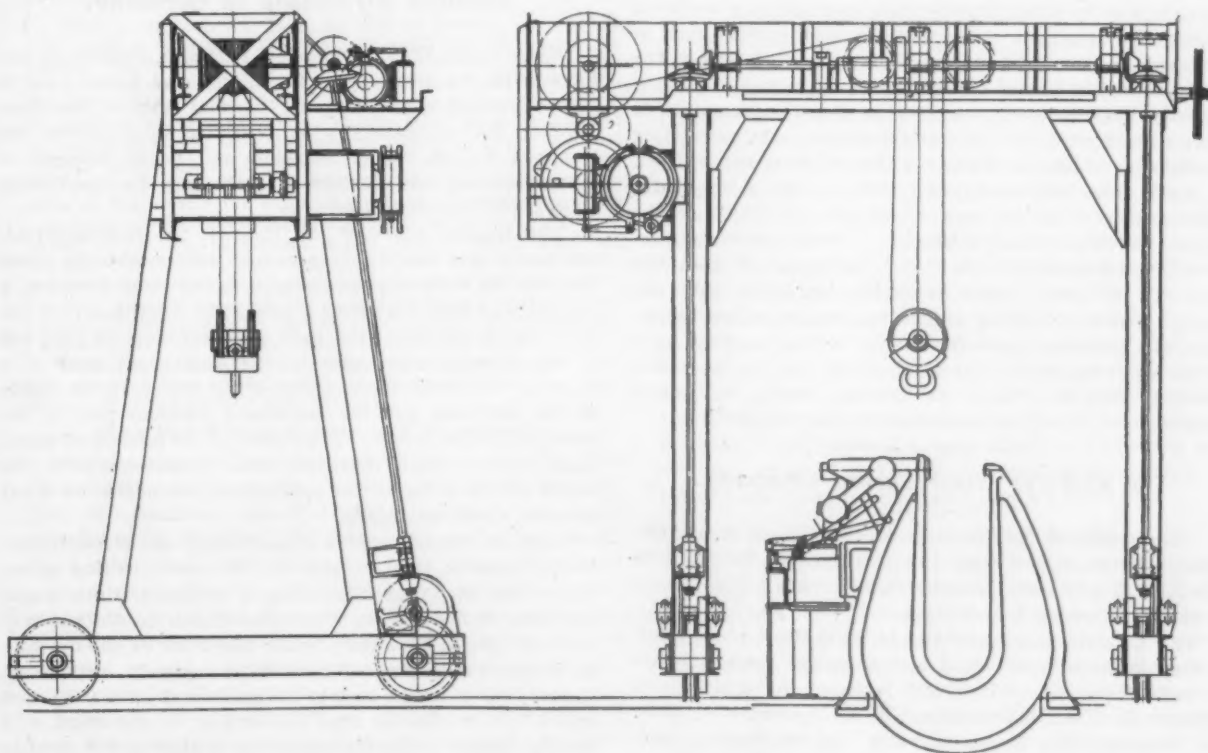


Fig. 2.—Automatic Riveting Gantry Used in Connection with a Stationary Riveter, Built by the Standard Bridge Tool Company.

arranged shop the number of lifts required is probably more than double. Further on down the shop the problem is not so complicated. In the storage space material can usually be handled in bulk, but if handled piece by piece it seldom causes delay anywhere else.

In assembling, pieces must again be handled in detail, but after assembling the number of lifts decreases very materially. Here again the problem is not so much to provide for carrying pieces about, but for handling for riveting. Most modern plants built in the last few years have adopted the transverse system of cranes as more nearly meeting all requirements. With this arrangement the cranes run between, or are suspended from the roof trusses. As many cranes as required to serve the tools can be installed, and these can be operated either direct from a cage, from the floor by ropes connecting to the controllers, or from a fixed convenient point. Fig. 1 is typical of a heavy crane for structural plant service.

This system, besides permitting an ideal arrangement of tools on the floor, adapts itself to every operation in the shop. At the entering end a large number of light cranes can be installed; at the finishing end heavy cranes can be used for handling and light ones for carrying the riveters. Many shops are adopting riveting gantries, instead of suspending riveters from an overhead trolley, or the material is carried by a gantry and the riveter made stationary, as in Fig. 2. This arrangement is probably

must again be picked up by the crane and carried to the point wanted.

Another system of cranes which has found favor in one or two instances employs large bridge cranes, running longitudinally, as in some of the older shops, and supplemented by wall or bracket cranes suspended on columns on either side of the shop, for handling the material in detail or for suspending riveters. This system practically compels locating tools in a strip on either side of the shop reached by the wall cranes, and has a tendency to stretch out the operations. Floor space cannot be used to as good advantage as with the transverse system, and tools cannot possibly be arranged as conveniently. Wall cranes also require much attention, and are apt to be expensive to maintain.

A very suitable arrangement is obtained by combining some of the best features of the various systems. One bay is equipped with longitudinal cranes for handling material in bulk and carrying it for different operations without loading on a car and picking up again, as in a shop equipped entirely with transverse cranes. This also provides for the free handling of heavy pieces after being assembled for riveting, machining, &c. Flanking the main bay, on one or both sides, wings of the desired width can be built and equipped with transverse cranes arranged to run partly into the main bay and reach material handled by the longitudinal cranes. The columns



supporting girders carrying longitudinal cranes must of course be placed far enough apart to allow material to pass freely. To avoid having them too far apart and keep down the cost of the building, tools and facilities for operating on long material, 60 ft. and above, can be confined to the main bay.

In general, however, all marking, shearing, punching, assembling, riveting, &c., should be done in the wings, keeping the main bay for handling and storing material for the work that cannot be handled anywhere else. When heavy loads are handled overhead most of the men will stop work—even those who could not possibly be injured in case of accident. Much of this sort of thing becomes costly, and the arrangement suggested above reduces it to a minimum. In the writer's opinion, this system is an excellent one and comes about as near covering the entire field as any.

In both the storage and loading yards ordinary bridge cranes are entirely satisfactory, on account of the nature of the work. It is probably best to have two trolleys on these cranes for handling long material without the use of spreaders or by balancing the load, as when only one hook is used. Swinging a chain under a load and hooking to cranes takes but an instant. Usually material from the storage yard is loaded on narrow gauge cars and pushed directly into the shop. A very good arrangement is to have these tracks built on a slight down grade, permitting loaded cars to be rolled into the shop without much effort.

Aside from the economy in building, a point frequently neglected in designing new plants, is the height of the cranes and trolleys above the floor. This becomes an important consideration when it is remembered that the tendency of heavy loads to swing increases with the height. There is nothing gained by having cranes higher than is absolutely necessary. This is true in every part of the shop and applies particularly to trolleys or cranes handling riveters. These at best are clumsy to control properly and should be suspended as low as possible.

### The Railway Steel Spring Company.

The statement furnished to the New York Stock Exchange in connection with the listing of \$4,362,000 first mortgage 5 per cent. Latrobe Plant sinking fund bonds gives the following information:

The annual capacity of the Latrobe Steel plant heretofore has been 36,000 tons, and extensive improvements are now under way which will increase the said annual capacity to about 90,000 tons. Since November 1, 1905, the company has spent, directly and indirectly, over \$500,000 on account of additions to the Latrobe plant, and authorized additions and improvements thereto (some of which are now under construction) call for a further expenditure of from \$300,000 to \$400,000. The average annual net earnings of the Latrobe Steel Company during the past 10 years, as shown by its books, amount to more than \$500,000.

The Railway Steel Spring Company now owns and has in active operation the following plants:

#### Steel Spring Plants.

Location.	Acres.	Annual capacity. Tons.
Pittsburgh, Pa.....	1½	25,000
Philadelphia, Pa.....	1½	15,000
Oswego, N. Y.....	7½	15,000
Detroit, Mich.....	4½	*60,000
East St. Louis, Ill.....	7	20,000
Total.....		135,000

\* Includes steel spring, capacity 20,000 tons; steel bar, capacity 40,000 tons.

#### Steel Tired Wheel Plants.

Location.	Acres.	Annual capacity. Wheels.
Depew, N. Y.....	2.1	18,000
Pullman, Ill.....	2.8	20,000
Hudson, N. Y.....	1.9	18,000
Scranton, Pa.....	4.0	8,000
Total.....		62,000

#### Tire Plant.

Latrobe, Pa., about 80 acres; 36,000 tons.

All of the aforesaid plants are owned in fee. They

are all thoroughly modern, completely equipped and free from encumbrance, except that the Latrobe plant is subject to the mortgage securing these bonds, to list which this application is made. In addition to said plants the company controls the output of the steel tired wheel plant of the Railway Steel Spring Company, a Colorado corporation, at Denver, Col., having a capacity of 7,500 wheels.

*Net Earnings of the Company from January 1, 1906, to September 30, 1906 (Partly Estimated).*

Net earnings after deducting operating and general expenses .....	\$1,641,343
Deductions:	
Preferred stock dividend (9 months) (5¼ per cent.)..	708,734
Common stock dividend paid April 3, 1906 (2 per cent.)	260,994
Interest on Latrobe plant 5 per cent. bonds.....	160,793
Total deductions.....	\$1,130,521
Balance, surplus, for nine months.....	501,822
Charged off for special expenses in connection with acquisition of Latrobe plant.....	450,000
Balance.....	\$51,822

### Machine Ownership in Germany.

Vice-Consul W. C. Schnieder, Freiburg, reports as follows to the Department of Commerce and Labor upon a recent decision of the supreme imperial court of Germany holding that machinery when installed in a factory becomes a fixture, which decision will be of interest to manufacturers and dealers in machinery in the United States who export to Germany:

The highest court of the Empire, the Reichsgericht, has lately in a number of cases held that machinery when installed in a factory or manufacturing plant becomes a fixture, and that therefore a sale upon condition that the title remain in the seller until the machinery is paid for or the lien of the vendor on the goods sold must give way, in case of the bankruptcy of the buyer, to the rights of his creditors, and the machinery becomes part of the assets of the bankrupt. The rights of the holders of mortgages on the plant therefore have precedence over the rights of the seller of the machinery, no matter on what terms the sale was made.

German manufacturers of machinery are strongly protesting against this decision by the court, calling attention to the fact that this ruling is unjust, the mortgagee receiving rights and security upon which he did not rely when he loaned his money, while the seller of the machinery is deprived of rights for which he expressly contracted, and relying on which he sold the goods and gave the buyer credit. It is claimed that this ruling of the court will greatly impede industrial progress, in that it will greatly limit the credit given by manufacturers and dealers in machinery to capable men who are short of capital and need assistance in the shape of credit in establishing new plants or enlarging those already established.

In its decision the court has entirely ignored the question of whether the machinery in fact becomes a part of the factory or plant—that is, whether it truly becomes a fixture in the sense in which that term is used in American law, so that its removal or separation from the building would injure or change the latter. In most cases, of course, this is not the case. It is claimed by many that the decision is therefore contrary to the code of 1900, and that therefore the court will sooner or later change its ruling; but others believe that an amendment to the law will be necessary to repair the damage, and this is believed to be practically impossible, because of the popular prejudice against amending the law so soon after it has gone into effect.

Manufacturers and dealers in machinery who deal with German customers should therefore be very careful about the credit of their prospective customers and should not rely entirely upon the conditions of their contract of sale, securing to them vendor's liens or other means of security by retention of title until payment.

The American Society of Civil Engineers at its meeting in New York last week voted to issue a letter ballot on the proposal to appoint a committee to investigate the status of engineering education, and recommend measures calculated to put it on the highest plane of efficiency.

## The Canadian Antidumping Clause.

### How It Will Stand in the Tariff of 1906.

OTTAWA, January 17, 1907.—Although the new tariff went into operation November 29, the House of Commons continues engaged with the discussion of its schedules. It is still possible to make amendments to the tariff; but as the Laurier government has a large majority in both the Senate and the House of Commons only such amendments can be made as the administration is willing to accept. One of the most enlightening discussions thus far in the proceedings in committee of the whole was that on the antidumping clause. It was enlightening because of the information forthcoming from the Minister of Customs as to the way in which this clause is administered at the customs houses. The clause was first embodied in the tariff in 1904, almost solely as an additional measure of protection for the iron and steel industry from United States competition. As it stands in the new tariff the new clause reads as follows:

That in the case of articles exported to Canada of a class or kind made in Canada, if the export or actual selling price to an importer in Canada be less than the fair market value of the same article when sold for home consumption in the usual and ordinary course in the country whence exported to Canada at the time of its exportation to Canada, there shall, in addition to the duties otherwise established, be levied, collected and paid on such article on its importation into Canada a special duty or dumping duty equal to the difference between the said selling price of the article for export and the fair market value for home consumption; provided, that the said special duty shall not exceed 15 per cent. ad valorem in any case; provided, also, that the following articles shall be exempt from such special duty: Goods whereon the duties otherwise established are equal to 50 per cent. ad valorem; goods of a class subject to excise duty in Canada; sugar refined in the United Kingdom. The expression "export price" or "selling price" in this section shall be held to mean and include the exporter's price for the goods, exclusive of all charges thereon after their shipment from the place whence exported directly into Canada.

#### Why the Clause Applies to Free Articles.

Just as soon as the clause was reached in committee there was a question to Mr. Fielding, Minister of Finance, from Mr. Bourassa, one of the Independent Liberal members from the Province of Quebec, who said: "I have always understood that all or nearly all the goods which are admitted free are supposed to be entered for the benefit either of the consumer or of the manufacturer. In the latter case they compose to a large extent the raw material of the manufacturer. I do not see, therefore, what objection there can be to our importing them even at prices below the usual rates. What advantage can it be to the consumer or the manufacturer to apply the antidumping clause when these goods under special circumstances come in at lower prices than usual?"

"Unless," answered Mr. Fielding, "the article that is imported free of duty is of a class or kind which comes into competition with something made in Canada the antidumping clause would not apply. A number of things were put on the free list in days gone by which are nevertheless also manufactured in Canada. To transfer these to the dutiable list would cause some hardship and be resented as an objectionable policy by many people. But a case was brought to our notice in which it was quite clear that a foreign manufacturer had cut down his prices to such a point that the evident intention was to close up the Canadian industry. Such a case should come under the antidumping clause. Of course, it may be argued that the proper remedy would be to impose a stiff duty, but that would no doubt excite a good deal of hostile criticism, and, in our judgment, we do not think it advisable to transfer these articles to the dutiable list. But it will be admitted that if the Canadian manufacturer has to face the competition of the world he ought not to be compelled to suffer the illegitimate competition I have indicated. I have given that instance as an illustration; but other cases might arise. The principle has been accepted that when foreign articles are sold below a fair price, with the sole object of crushing out some home industry, then the antidumping duty should be applied. If that principle be a sound one, as applied to articles on the dutiable list, it is still

more applicable to articles on the free list, because in the former case the home manufacturer has some protection, while in the other he has none at all. Once we accept the principle of the antidumping duty it must be admitted that it ought to apply to free goods in cases where similar goods are made in Canada, and the prices of the foreign articles are cut down with the express purpose of crushing out some Canadian industry."

Mr. Fielding was next asked, "What are the means of finding out the selling price of an article in a foreign country; what machinery is at the disposal of the Minister of Customs to find out whether a price is a proper one or not?" His answer was that the customs officials had to be very vigilant, and had to adopt many methods to ascertain what was the fair market value. He said: "We have the benefit of agents in the principal ports, and in our own larger cities we have experts who are able from personal knowledge and experience in trade to ascertain the fair market value of goods. The commercial journals give us some help. Sometimes we have to send agents abroad to ascertain the facts."

#### A Protection Measure.

Mr. Fielding continued: "The argument might fairly be used, that if foreign manufacturers dump their goods into Canada our people would get goods at a cheaper price. But I think the House will agree with me when I say that the people who carry on this system of dumping do not do it with the benevolent intention of helping the Canadian people. They have a selfish end in view; and as soon as they had closed up the factories in Canada undoubtedly the prices would immediately go up, and Canadians would not be benefited by such competition."

As the Finance Minister and all his colleagues of the Government were free traders in the days when they were in opposition, this statement drew from one of the conservative and high protectionist members the remark that it was the expression of a good protectionist principle. "It is good protection principle," responded Mr. Fielding, "and there are some kinds of protection which are very good. I am quite prepared to recognize a good thing when I see it under any name."

#### A Grave Charge and Its Denial.

Mr. Bergeron made the charge that much depended on the political affiliations of a Canadian manufacturer when goods were imported that the manufacturer held should be liable to the antidumping duty. "Suppose," he said, "a manufacturer is a friend of the Government it will be very easily found out by the department that the article was sold in the United States to the Canadian consumer at a slaughter price. The Government is not at all scrupulous in such matters. If the manufacturer should not be one of the friends of the party in power it would very soon be found out that the article was sold in the States at the market price, and that the antidumping clause should not be applied. The Government knows how to deal with the manufacturers, and it knows how every manufacturer stands in political matters. It has handled the manufacturers with a good deal of skill during the past 10 years. At the last St. Ann's (Montreal) election some men whose names were mentioned in the newspapers as attending a Conservative political meeting were called to Ottawa and asked if the report was true. Another manufacturer whose name was mentioned as having been at a committee meeting was called to Ottawa in order that the Government might find out whether he had been at that meeting or not. We should take every precaution to find what really was the policy of the Government and to see that everybody will be protected in the same way. We ought to know what standard is taken for ascertaining the market value of an article in the American market, as compared with the price to the Canadian consumer."

This charge, made so unreservedly, immediately brought Mr. Paterson, Minister of Customs, into the discussion with a denial of its truth. He reminded the committee that great care had to be taken at the customs houses in determining the amount of duty due on imports, whether these imports came within the provisions of the antidumping clause or not. "But it is true," he



went on, "that the application of the antidumping clause has led to a more thorough ascertainment of values by the Customs Department, through the expenditure of the larger sums of money which this House was kind enough in the public interest to place at our disposal to enable us to engage a larger staff than before and to maintain men at different points, chiefly in the United States, whose duty it is to inquire into proper values and whose time is devoted to that inquiry. It led further to the requirement by the Customs Department of additional information from the exporter. Under our present forms the person exporting goods from another country to Canada is required to state at what price he sells them in his own country, and in another column at what price he has sold them to the Canadian purchaser. This places the facts before the customs officer at a glance. The exporter must state the facts under a solemn declaration. They may show, for instance, that he sells goods for \$20 in

### The S & S Variable Speed Countershaft.

An ingenious mechanical speed changing device, manufactured by the S & S Engineering Company, with temporary office at 581 Park place, Brooklyn, N. Y., is shown in the accompanying illustrations. The desirability of running a machine at just the right speed for the job in hand is appreciated by all, but it is generally inconvenient or even impossible to more than approximate the theoretically correct speed. Too high a speed is prohibitive, consequently machines are nearly always run at a speed more or less below that at which the best economy would result. It is estimated by the builder of this gear that in many instances the loss entailed reaches 25 per cent. of the yearly profit. The appliances at present in use are for the most part only compromises that do not effect a maximum efficiency. With the step cones the desired speed is almost invariably somewhere

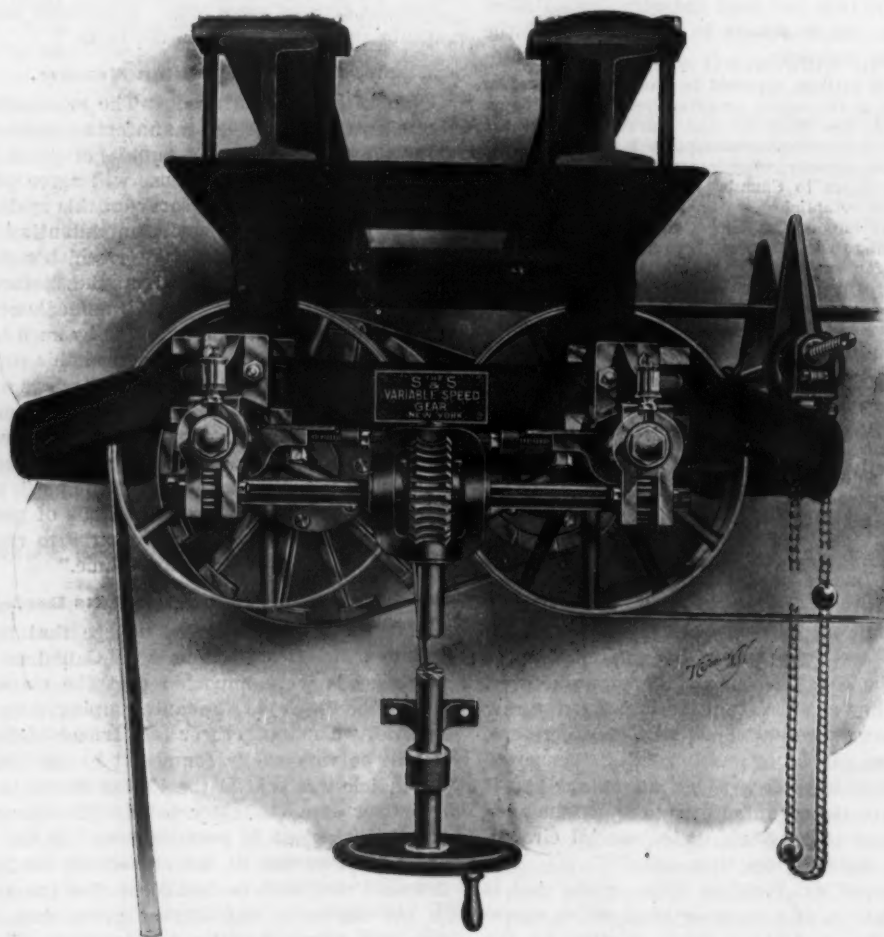


Fig. 1.—Side Elevation of the Suspended Type of S & S Variable Speed Countershaft.

Canada, the price of which in the United States is \$25. In that case the customs duty is levied upon the United States price. This is the form required in the case of shipments to Canada irrespective of the views of importers, their previous nationality, or anything else. Of course, all cases are dealt with in a businesslike way and on their merits."

The discussion led to no amendment to the antidumping clause, which, subject to the assent of the Senate, an assent that is never withheld from any clause in a bill for which the Government is responsible—will be embodied in the tariff legislation of 1906-1907 in the form in which it is above quoted.

E. P.

The Marion Steam Shovel Company, Marion, Ohio, has set aside \$50,000 to be paid as a bonus to all employees in the employ of the company July 1, 1907, for continuous employment to that date from January 1, 1906. This is to show the friendly relations that exist between the company and its employees, and to allow the latter to share in the prosperity that the company has experienced the past year.

between those corresponding to the steps, therefore cones, although extensively used, are not ideal for the transmission of power. They are heavy and bulky, and the transmission strain is abnormal and destructive. There is no give to the pulleys, and the belt to be of any service must be repeatedly taken up and maintained at high tension.

The S & S variable speed countershaft consists of an arrangement of expanding belt pulleys, by means of which any speed desired within the limits of 4-1 can be obtained between two shafts. The device is one of special value in all manufacturing where the economical output depends largely on the ability to run machines always at the maximum allowable speed and to adjust to that speed at a moment's notice. The gear is made in 14 standard sizes, capable of transmitting up to 128 hp.

The variation in the diameter of the expanding pulleys will be easily understood by referring to the side elevation, Fig. 1, and the view from beneath, Fig. 2. It is effected in the following way: The rim is divided into 12 sections, with two spokes riveted to each. These spokes slide in machined slots inside a cast iron hub.

Part of each spoke inside the boss has teeth milled on one edge, which mesh with a broad pinion. This pinion is operated by an inner shaft, which is capable only of longitudinal movement, but through helical grooves milled on its inner end its axial movement causes the pinion inside the hub to rotate. This draws the spokes in or forces them out, according to the direction in which the hand wheel which operates both of these inner shafts simultaneously is turned. The operating hand wheel shaft may be made as long as required and directed at any angle in a vertical plane, so that the wheel may be permanently located wherever most conveniently reached.

The following claims are made for this variable speed transmission gear: It is able to transmit any amount of power and vary the speed at a ratio of approximately 4-1, with little more loss through friction than would be found in two ordinary parallel shafts. Very little power is required to effect a change of speed, and the change may be made equally well whether the gear is in operation or stationary. The expanding pulleys make possible an efficient short drive, their construction being such that the sag and elasticity of the belt need not be con-

voted at the first meeting of the re-elected Board of Directors of the Lehigh Valley Railroad, held in Philadelphia, January 17. The contracts cover 5000 freight cars, 55 locomotives and a complete new equipment for the Black Diamond express, which the management proposes to make the finest train operated between New York and Philadelphia and Buffalo.

**Milwaukee's Manufactures.**—Milwaukee manufacturing plants made material gains in their output in 1906 as compared with the previous year. According to local authorities, the iron and steel industries lead all others by a large percentage. The value of the product of 42 iron, steel and heavy machinery establishments for the year was \$47,501,000; 25 malleable iron and hardware manufacturing plants, \$6,136,430; 17 plumbers' supplies and pipe covering plants, \$5,931,260; 14 tin and sheet metal factories, \$6,508,840. The aggregate value of the product of all metal working industries in Milwaukee for the year 1906 is placed at \$95,444,360. The extent to which the manufacture of metals leads all other industries in Milwaukee is demonstrated by the fact that in the order of their importance, based on the value of their

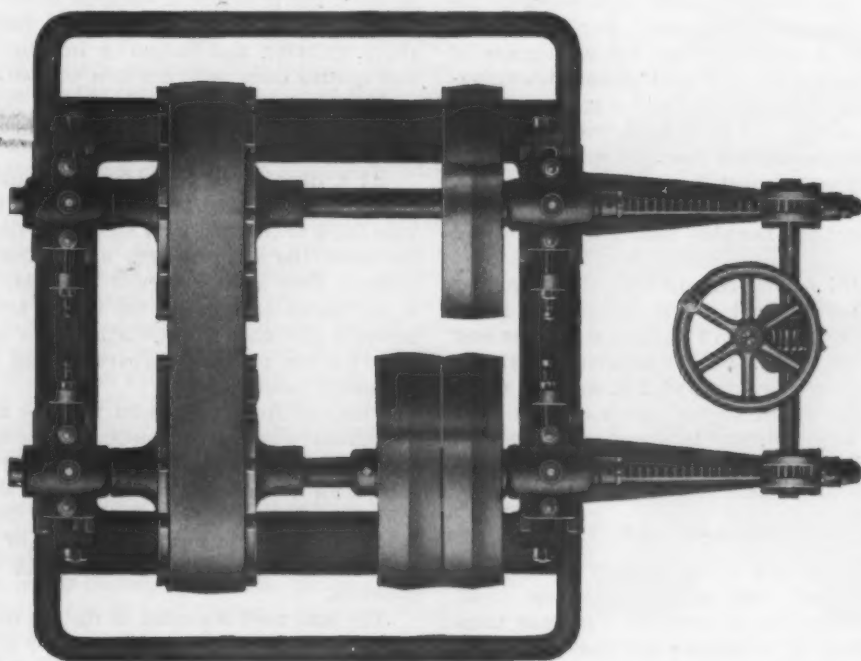


Fig. 2.—A View Looking Up at the Countershaft Shown in Fig. 1.

sidered. No special form of belt is necessary and all pulleys used on the gear are between bearings—i. e., are not overhung—which not only economizes in space, but insures normal working strains, thereby prolonging the life of the gear.

The S & S variable speed gears are made for mounting on overhead girders, on the ceiling, wall or floor, and the bearings, which are of best phosphor bronze, are (except on the gears for floor mounting) lubricated from magazine oil boxes, which only require the attention of the oiler about once a month. Those intended for floor positions and the heavier sized machines, Nos. 8-14, are ring oiled. The gear is substantially designed and is built with as much exactness as would be found in a machine tool. Each size takes up as small an amount of space as is consistent with the power it transmits.

The idea was originated by Bernard E. Scriven, formerly of New York, some four years ago, who leased the British rights to an English firm that has been manufacturing the gear for the past year. Opportunity has thus been afforded to test out the device and correct its weak points of construction. As made to-day it is believed to be thoroughly reliable and fully capable of the work for which it is intended.

Approval of contracts for new equipment to cost more than \$6,000,000, and to be delivered during the year, was

output, the five leading industries are as follows: Metal working, \$95,000,000; clothing and kindred goods, \$38,000,000; leather and leather products, \$37,000,000; beer and tonics, \$26,000,000; meat products, \$23,000,000.

**Canal Competition with Railroads.**—Isaac B. Brown, Secretary of Internal Affairs for Pennsylvania, takes the ground in his annual report that it is not necessary to maintain canal transportation to keep down railroad rates. The rehabilitation of the canal systems of Pennsylvania was made an issue in the recent political campaign, and a measure looking toward such action will come before the Legislature this winter. Major Brown compares the average receipts per ton per mile in the past five years by the Pennsylvania Railroad and the New York Central, the latter being paralleled by the Erie Canal. The average of the five years for the Pennsylvania Railroad is 0.597 cent and for the New York Central 0.638 cent. It is added that if the Pennsylvania Railroad had received the same rates as the New York Central in the past year its revenues would have been increased more than \$6,500,000. The secretary takes the view that all that could be accomplished by canal competition in modifying rates could be reached more easily and effectively by the State exercising its powers to regulate rates and to prevent discrimination.



## Carbon Estimation.

### The Estimation of Carbon in Iron and Steel by Oxidizing the Borings, with the Use of a Single Bunsen Burner.

BY JAMES A. AUPPERLE, INDIANAPOLIS, IND.

While the carbon method by the ignition of iron and steel borings has not been adopted by chemists in general, yet it is steadily gaining favor, and perhaps a description of the apparatus and details of the method which I have adopted may be an encouragement to chemists to discard the tedious and laborious solution of coarse borings for the direct method.

#### The Direct Method Much Cheaper.

I hope to show that by the direct method a carbon determination can be reported in 10 min. from the time the sample is weighed, when 1 g. of steel is used. When 3 g. of steel, or 1 g. of cast iron is used a report can be made in 15 min. As far as expense is concerned the direct method is very much cheaper. For instance, a chemist will use 20 g. of copper salt for each gram of sample used. Supposing he makes 25 carbon determinations daily, and the average sample is 2 g.; he will be using over 2 lb. of copper salt daily at a cost of \$1.20, or about \$350 worth of chemicals a year. It would be much better if this money were invested in platinum apparatus, and the energy and time that the chemist now uses in dissolving and filtering samples conserved for other purposes.

At least one-third of the chemist's time is saved by using the direct method, and it will usually be found that the value of time saved will at least equal the cost of the chemicals, which would make a saving of \$700 a year on 25 carbon determinations of 2 g. samples daily.

However, it is not only economy that a chemist must consider, but also accuracy, and in many cases rapidity. I therefore claim for this method the three items, namely—accuracy, speed and economy.

#### Test of Carbon Liberated.

The question "How can I tell whether all the carbon has been liberated" will naturally suggest itself. The manner in which this is detected (in case there should be any doubt) is to remove the iron oxide to a steel plate and with a hammer rub the oxide to powder. If the carbon has all been liberated the sample is very friable and crushes easily, but if any metal is unoxidized the hammer will meet friction and stick to the metal. It was by making this test I found that each tapering end of iron oxide was not completely burned in 10 min. (in the case of cast iron). As I had decided that 10 min. is sufficient time to burn a 1 g. sample of iron I found the remedy to lie in not tapering the iron borings when placing them in the boat, but place them in the middle of the boat, occupying about 2 in. of the  $5\frac{1}{2}$ -in. boat. When I obtained low results the borings occupied about 5 in. of the boat. I reasoned that the heat due to the combustion of the borings was spread over such a large area that it was dissipated throughout the apparatus, but when the same borings occupied about one-half the former area the heat of iron combustion was concentrated and utilized to bring the entire sample to the proper temperature to fuse the iron oxides into one mass. Ten minutes burning them gave concordant and accurate results.

It may seem remarkable, but nevertheless it is a fact, that a single Bunsen burner will produce sufficient heat to burn a sample of iron or steel in so short a time and fuse the oxides in one lump. Whatever the shape of borings may be their form will change as the oxides fuse into one mass. The size and form of the apparatus admit of rapid heating, and each combustion is begun with a cold furnace. The educt tube being very small, it quickly attains a red heat and completes the oxidation of the carbon compounds. No copper oxide is used.

#### The Aupperle Crucible

was described in *The Iron Age* of October 6, 1904. I have, however, changed the dimensions of the present form, making it longer and narrower. The educt and induct tubes are located in the same position and pass through the annular water jacket as in the original crucible. The weight of platinum is about 100 g.

The apparatus is used in a horizontal position and is supported at one end by the iron framework of the stand, and at one other point, where it is suspended by a platinum wire which passes through the asbestos arch and is fastened to the top of a steel semicircle.

The stand or furnace is made of four legs, 10 in. long, on which is fastened a slotted plate. This slot is to permit the gas flame to impinge upon the apparatus. The top of the stand is made from No. 10 sheet steel, 13 in. long and 5 in. wide. A 1-in. slot longitudinally for 7 in. is cut out of the middle of the sheet, and  $2\frac{1}{2}$  in. of each end is turned up at right angles, making a furnace 8 in. x 5 in. A  $\frac{5}{8}$ -in. hole is bored through one of these turned up pieces to permit inserting the apparatus.

The arch of the furnace is made from  $\frac{1}{8}$ -in. thick asbestos board, through which four  $\frac{1}{2}$ -in. holes are bored to allow the products of combustion to escape. This asbestos board is wetted and shaped two-thirds around a  $1\frac{1}{2}$ -in. cylinder, and flanged by turning the ends outward and tacking them until dry to a wooden board. After the arch is made the hole is bored for inserting the apparatus, so that it will be supported about the middle of the arch.

At a distance of 5 in. from the anterior end of the furnace a steel band is shaped around the asbestos arch. This band is clamped by a stove bolt that passes through the band, the asbestos arch flange and top plate of the furnace, thus making everything rigid. This steel band is perforated once at the top of the arch through which passes a platinum wire, attached to a narrow band that encircles the platinum apparatus and supports it in a horizontal position.

This one supporting point replaces a fire clay trough sometimes used in combustion furnaces. When a fire clay trough has to be heated it would be impossible to start with a cold furnace and with a single burner burn iron and steel borings in so short a time. The furnace is placed at right angles to the length of the table, so that the boat can be easily removed with a pair of strong tweezers.

The boat used is similar to the one described in Blair's "Analysis of Iron," in which a cover of platinum foil is used, perforated in each half inch in the form of a semicircle, resembling wings. I, however, make the bottom of the boat in the form of a semicircle, in order to obtain more points of contact for rapid heating.

It is a fact that carbon dioxide is indicated in less than 2 min. after lighting the gas, as noted by the turbidity of the barium hydroxide.

#### As to the Temperature

the apparatus attains, I have made attempts to register the temperature by placing a Le Chatelier thermo couple once around the apparatus with the junction of the couple impinging upon the platinum. I have found that the temperature will vary, due to the rapidity of oxidation and the amount of sample taken for analysis.

As an illustration: A 1 g. sample of iron, standard "C" of the American Foundrymen's standard, began to yield carbon dioxide at 850 degrees C., from which point there was a rapid rise in temperature to 960 degrees, which was the maximum heat, produced in part by the combustion of the iron, as was indicated by the temperature falling to 940 degrees after the iron was burned and shown by the increase in the rate of bubbles passing through absorption apparatus. When more than 1 g. of sample is used, the maximum temperature is about 1000 degrees C, which is attained in about 4 min.

I now wish to call attention to materials that are difficult to burn, such as compact samples of crushed white iron, shot and ferroalloys.

I am indebted to Messrs. Kasmir and Copp, Midvale Steel Company, Philadelphia, for the idea of adding a

gram or two of low carbon steel to the ferro alloy, and subtracting the carbon of the steel from the total carbon found.

The combustion of the steel generates sufficient heat to burn the ferroalloy quickly. On a sample of ferrochrome analyzed by the Midvale Company, on which was used a steel to prime it, a result was obtained of about 8 per cent. carbon. The same sample when burned directly without the addition of steel by a firm of commercial chemists reported about 6 per cent. carbon. On all iron samples that are in the form of borings I use no steel to prime with. But in crushed samples I add a gram or two of steel and get results within a few hundredths per cent. on samples of known carbon contents.

Many chemists who use the direct method use pure alumina ( $Al_2O_3$ ) in the boat. This is light and very fine, and its particles are sometimes carried out of the boat. I have substituted the impure alumina known as corundum, or emery, which I ignite before using the first time.

After much experimenting I have adopted that known as 60 mesh. Nothing finer should be used in this apparatus. If 100 mesh be used it packs too closely, rendering it difficult for the oxygen to filter through to oxidize the borings completely in a short time.

On the bottom of the boat a layer of 60-mesh emery is placed, which is then formed into a trough by drawing a glass rod along the top surface. The borings are then placed in the boat, being careful not to spread them any more than is necessary to permit the cover being placed on the boat. The next and very important step for a rapid combustion is to cover the borings completely with more 60 mesh emery.

This cover of emery serves a double purpose. First, the heat of combustion of the borings is prevented from escaping. Thus the whole mass of borings is quickly brought to the fusing temperature of iron oxide. Second, when a cover of emery is used the oxides are thrown to the middle of the boat and can be lifted out in one piece which, when broken, will be seen to be hollow throughout its length. Before I learned this fact the oxides would invariably stick to the platinum boat and cover, while now the platinum remains perfectly clean.

I use a measured amount of standard barium hydroxide (see *Journal American Chemical Society*, page 858, July, 1906. The Volumetric Estimation of Carbon in Iron and Steel, with use of barium hydroxide. By James Aupperle). For steel I use 65 c. c. barium hydroxide, using an overflow pipette. For very high carbon material I use a double portion contained in two Walters form Meyer tubes.

The contents are poured into a beaker, the tubes washed with boiled distilled water, and several drops of phenolphthalein added. Standard hydrochloric acid is then run in from a blue line burette until but a faint pink remains. The standard acid is conducted through a capillary tube extending well into the solution which is being titrated. The beaker is then placed beneath the burette containing standard barium hydroxide and titrated to a deep pink shade or until a drop produces no deeper tint. One c. c. barium hydroxide is equivalent to 1 c. c. standard hydrochloric acid, which is a trifle less than fifth normal. One c. c. equals 0.001 g. carbon. The standard hydrochloric acid is prepared by mixing 15 c. c., 1.20 acid in 1000 c. c. water.

The barium hydroxide solution is prepared by adding 31.5 g. crystallized barium hydroxide to each 1000 c. c. water and by proper dilution adjusting to acid standard.

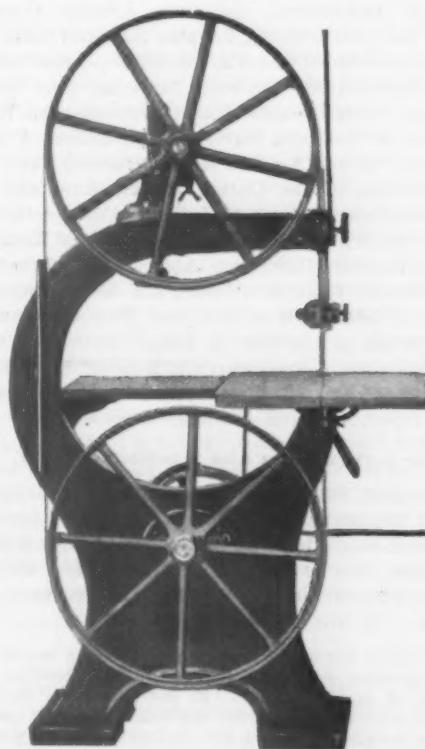
Having tried multiple tube burners, I find they make a smoky flame and insufficient heat for the rapid oxidation of the borings. I attribute this to deficient gas pressure. With a single wing top burner a blue flame about 6 in. long is produced where it strikes the apparatus. The size of the borings is immaterial, provided they are small enough to permit the cover being placed on the boat.

The Erie Railroad has purchased 3000 steel hopper cars of 100,000-lb. capacity each, 2000 of which will be

built by the Standard Steel Car Company, Hammond, Ind., and 1000 by the Pressed Steel Car Company, Pittsburgh.

### The Crescent Improved Band Saw.

The illustration herewith is of a 32-in. band saw of recently remodeled and greatly improved design, built by the Crescent Machine Company, Leetonia, Ohio. Special attention is called to the very substantial yet graceful design. The frame is cast in one piece, being cored out hollow, and the metal is distributed in all parts to give the machine the rigidity that is so desirable in a band saw. The machine has box feet and a good broad floor base, giving it a rather massive appearance. The table may be tilted to any angle up to 45 degrees for bevel sawing, and has a stop for the exact horizontal position. The tilting mechanism is very simple, and the table is held rigidly at any point by pulling a hand lever. The



The Redesigned 32-In. Band Saw Built by the Crescent Machine Company, Leetonia, Ohio.

table segments slide in machined ways, and when the angle is being changed there is no endwise motion.

The machine is equipped with a very simple patented adjusting device for guiding the saw blade in any desired path on the face of the wheels, and this adjustment can be made while the machine is in motion. The guide bar is of hexagon steel provided with spring counterbalance when specially ordered.

The machine is of a good size for factory or general planing mill use, where the work done is not of extremely large dimensions, or where the amount of work would not justify a more expensive machine. The principal dimensions are as follows:

Diameter of band wheels, inches.....	32
Depth of throat, inches.....	31
Greatest height under guide, inches.....	11
Table, inches.....	24 x 28
Speed, revolutions per minute.....	350 to 450
Length of saw blade.....	16 ft. 4 in.
Floor space occupied, inches.....	35 x 48
Net weight, pounds.....	850

The manufacturers of this machine have for several years made a careful study of the features most desired by the users of band saws, and in their line will be found machines suitable for all classes of scroll work. In addition to building band saws with tilting tables in five sizes, they build an angle band saw of improved pattern which was described in *The Iron Age* April 5, 1906. The demand for the line of machines built by this company has increased to such an extent that it was found necessary to greatly enlarge the capacity, and new factory buildings have just been completed, which will shortly be occupied.



## The Export Convention.

Brief reference was made in last week's issue to the proceedings of the Convention for the Extension of Foreign Commerce which was in session at Washington, D. C., at the time of going to press. The convention was comprehensively national in its composition, comprising delegates from nearly every State appointed by the governors, representatives of commercial bodies in numerous cities throughout the country and authorized representatives of the following national organizations:

National Association of Manufacturers, National Boot and Shoe Manufacturers' Association, National Wholesale Lumber Dealers' Association, Morocco Manufacturers' Association, American Cotton Manufacturers' Association, National Association of Credit Men, Merchant Marine League of the United States, American Aberdeen-Angus Breeders' Association, American National Live Stock Association, American Asiatic Association, American Reciprocal Tariff League, National Shoe Wholesalers' Association of the United States, American Meat Packers' Association, National Machine Tool Builders' Association, United States Export Association, National Association of Clothiers, National Association of Agricultural Implement and Vehicle Manufacturers, Paint Grinders' Association of the United States, American Hardware Manufacturers' Association, Commercial Law League of America, National Association of Box Manufacturers, National Hardware Association of the United States, National Wholesale Druggists' Association, American Bankers' Association, National Wagon Manufacturers' Association of the United States, National Consular Reform Convention, American Institute of Electrical Engineers, American Trade Press Association and the National Paint, Oil and Varnish Association.

### For a Maximum and Minimum Tariff.

Secretary of State Root's unequivocal declaration in favor of a maximum and minimum tariff for the United States, which he made in an address on Tuesday, and the action taken by the delegates immediately thereafter, constituted one of the most important features of the convention. On this point Mr. Root said:

I do not think the broad subject of reciprocity can be considered and discussed without going into a consideration of the whole form of our tariff law. In my judgment, the United States must come to a maximum and minimum tariff. A single, straight-out tariff was all very well in a world of single, straight-out tariffs, but we have passed on during the course of years into a world, for the most part, of maximum and minimum tariffs, and with our single rate tariff we are left with very little opportunity to reciprocate good treatment from other countries in their tariffs and very little opportunity to defend ourselves against bad treatment.

Of course, this is the side I look out from; this is my point of view; this is the way it looks to me, that every country in the world can put up its tariff against our products as compared with similar products from other countries, without suffering for it so far as our present law is concerned. Every country in the world knows that if it puts down the rate on our products in its tariff it will get no benefit from it, because we have to charge the same rate to that country that we do to the country which treats us the worst in respect to its tariff rates.

The maximum and minimum tariff would free us from one serious difficulty which arises from the negotiation of reciprocity treaties. When you make a reciprocity treaty with a country, agreeing to receive the product of that country at less than our regular rates, you are immediately confronted by country B, which is equally friendly with us, and to which we cannot, with good grace, refuse similar treatment, and so on down the list.

Mr. Root's remarks are reported to have fairly carried the delegates off their feet, and practically the entire remainder of that session was given over to a discussion which was the outgrowth of the speech. The result was that the convention by a large vote adopted a resolution giving its approval of Mr. Root's opinions in favor of a maximum and minimum tariff. The resolution was offered by A. H. Sanders, of Chicago, president of the American Reciprocal Tariff League. It provides for a maximum and minimum tariff for five years up to 20 per cent. of the existing duties at the discretion of the president, as may be necessary to secure most favored nation treatment for a like period without general revision of the tariff. The resolution was not adopted, however, without strenuous objection on the part of a small minor-

ity of the members of the Convention. Chief among the objectors was Wilbur F. Wakeman, of New York, secretary and treasurer of the American Protective Tariff League. Mr. Wakeman said he could point out 20 men among the members of the convention who would be put out of business within a few weeks after the passage of such legislation as was proposed by the resolution.

### Speaker Cannon's Position.

On Wednesday, Speaker Cannon extended a formal reception at the Capitol to a large number of the delegates. Chairman William McCarroll, of New York, made a brief address presenting the appeal of commercial interests for tariff changes and ship subsidy, and in response the Speaker declared that the Republican policy is to monopolize the home market and then establish a foreign market for the surplus. "Reciprocity is a sweet word," he said. "Its meaning depends upon the man or leader who uses it." A statement of Mr. Cannon that maximum and minimum tariff is practicable was greeted with applause, and the Speaker explained how carefully such a tariff must be drawn to afford protection to American interests and clothe the Executive with power to retaliate when other nations discriminate against the products of the United States. The Speaker reviewed the provisions of the Littauer ship subsidy bill, and said the assistance to mail lines provided for in the measure should not be called a subsidy, but merely "the spending of the money we get from sea service to promote sea service."

The principal feature of the final session of the convention on Wednesday was the adoption of a resolution recommending the passage by Congress of such legislation as will promote the growth of the American merchant marine, but avoiding the indorsement of the measure now under Congressional consideration. The recommendation was reported by the Committee on Resolutions and was unanimously indorsed by the convention.

Among those who delivered addresses were: D. A. Tompkins, of Charlotte, N. C., on "The Importance of an American Merchant Marine"; J. Hampden Dougherty, of New York, on "Ship Subsidies and Closer Commercial Relations With South American Countries"; Thomas M. Osborne, of Auburn, N. Y., on "Obstacles to Foreign Commerce," and Francis B. Loomis, former Assistant Secretary of State, advocating the establishment of schools in South America for instruction in the English language.

### The Proposed Maximum and Minimum Tariff.

WASHINGTON, D. C., January 22, 1907.—A very serious misapprehension appears to have been created in the public mind by press dispatches sent out from Washington during the past week in which it has been made to appear that as Secretary of State Root and Speaker Cannon have declared themselves in favor of a maximum and minimum tariff there is a good prospect for the early enactment by Congress of a new tariff law based upon the double column principle now employed by the leading countries of Europe and South American. Business men in all lines of trade have accepted these reports as indicating the early revision of the Dingley tariff law and in communications to Senators and Representatives are soliciting detailed information with regard to the plans of Congress for taking up the subject.

### Secretary Root's Plan.

It is true that both Secretary Root and Speaker Cannon in addresses delivered before the National Convention for the Extension of Foreign Commerce of the United States held here during the past week, "came out strongly for a maximum and minimum tariff," but an examination of these addresses discloses the fact that while the Secretary of State and the Speaker of the House are united in favor of a double column tariff they are as far apart as the poles with respect to the basis upon which the schedules shall be framed.

Secretary Root believes—and in this there is high authority for the statement that the President agrees with him—that the Dingley rates should form the maxi-

imum schedule and that a minimum schedule should be devised by making reductions of varying percentages from these rates. Thus, in certain cases where the protection of the American product is no longer necessary, cuts of 25 or 30 per cent. might be made, while in other cases a 10 per cent. reduction would be as much as the domestic industry could stand, and in a few cases it would not be advisable to make any cut at all. Speaker Cannon is committed to the maximum and minimum tariff principle only so far as the form of the double column schedules. When it comes to considering the rates, he would take the Dingley tariff as a minimum and would add 10 or 20 per cent., so as to provide what he calls a "big stick," with which to punish countries refusing to grant us the benefit of their minimum rates. His plan is outlined in his address as follows:

A maximum and minimum tariff, I believe, is practicable, but the man or the committee which arranges the schedules has great investigations to make. If you do it horizontally there is not a manufacturer within the sound of my voice who would not swear we were raising the prices of his raw material or affecting his products. Speaking for myself, as a member of the House, and if I understand the consensus of Republican opinion in the country, when I speak about a maximum and a minimum tariff I speak about a minimum tariff that should run to all nations and to all peoples, so adjusted as to offer ample protection to every American industry and to every man that lives in this republic. When we obtain that, then I would make a maximum tariff—10 per cent., if you want it, or 20 per cent., higher—and what for? I would make it, so that if anybody discriminates against Uncle Sam's children the Executive would be clothed with the power of ascertaining that fact, and discriminating by way of a set-off. In other words, that would be "the big stick."

It could be very readily managed, if with time and investigation you could make a minimum tariff that would be of sufficient protection, and then have a maximum tariff with which we could punish anybody who was treating us badly. There are many people who are for a minimum and maximum tariff; I have some in my mind's eye now. There are some of them in my State—very clever people—and I do not speak disrespectfully of them. When you talk about a minimum tariff that affords ample protection to American industries, and that you would make a maximum higher, those of them who are not Christians would say "damn," and those of them who are would shake their heads. So you see there is a great deal to think about regarding this maximum and minimum tariff.

#### Stand-Patters Gratified.

It will be observed that while Secretary Root favors a reciprocity maximum and minimum tariff Speaker Cannon advocates a retaliatory tariff, designed to put the United States in an advantageous position in the case of a commercial war. The Speaker's plan does not involve any element of tariff revision now so earnestly desired by many important manufacturing interests, and those business men who have hailed his recent utterances as foreshadowing the early overhauling of the existing schedules are doomed to disappointment. In fact, the Speaker's statement is regarded by the so-called stand-pat leaders here with considerable satisfaction as introducing an element that will tend to preserve an equilibrium between the revisionists and the high protectionists and thereby defer tariff legislation. The protectionists, of course, are anxious to prevent any reduction in the Dingley rates, and as the revisionists earnestly deprecate the adoption of any higher rates, whether for retaliatory purposes or otherwise, all considerations tend to the maintenance of existing conditions. In the opinion of the most experienced observers here the recent incident will serve merely to develop another basis for a protracted investigation whenever the Congressional leaders decide to undertake an inquiry concerning the advisability of revising the tariff, a question that will receive much consideration long before the actual work of framing new schedules is entered upon.

W. L. C.

The largest order for gas producers ever awarded has been given to the Wellman-Seaver-Morgan Company, Cleveland, Ohio, by the United States Steel Corporation, and calls for 64 Hughes mechanical gas producers for the Duquesne Steel Works. These producers are to be driven by electric motors, and are rated as equal in gas producing capacity to 160 hand poked producers. The Wellman-Seaver-Morgan Company state that the Hughes mechanical producers are attracting the attention of steel makers because they require no hand poking, give a better quality

and a more uniform supply of gas, and in battery require less room than the hand poked type of producer.

#### German Research in the Properties of Metals.

Reference is made in London *Engineering* to the work of the Prussian Materialprüfungsamt, which is the merger of the mechanical testing station at Charlottenburg and the chemical testing station at Berlin, both royal Prussian institutions devoted to technical testing. The State makes a regular grant, which in 1905 was the difference between expenses of 460,000 marks and revenue of 280,000 marks. The metal testing department is completing researches extending over several years. These are the investigation of alloys of nickel, iron, carbon and manganese, undertaken on behalf of the *Verein zur Beförderung des Gewerbefortschritts*, which is publishing the results.

The department of metallurgy has been investigating hard high carbon steels. The results are soon to be published. The Krupp Works, the Bochumer Verein and the Gute Hoffnungshütte have presented steel castings for an inquiry that is still under way. The other work of this department has dealt with some of the properties of iron. It was observed that local rusting of iron did not by any means necessarily indicate chemical heterogeneity. The local formation of air bubbles may produce such rusting—e. g., in boiler plates. Where parts of mild steel, heated to high temperatures, come in contact with less highly heated iron, the nonsuperheated iron is most readily attacked by rust. In the experiment pieces of steel were heated up to 900 and 1300 degrees C., respectively, joined by rods of the same iron and dipped into distilled water. Electrically the nonsuperheated iron is more positive (that is, stands nearer zinc) than the superheated iron, which corresponds more to platinum. The difference in electric potential amounted to as much as 0.4 volt. The observation may be important welding. If the weld is not properly hammered out the two different portions of iron may form electric couples and corrosion may set in. It should not be so with a careful weld, of course.

**The Monongahela River Consolidated Coal & Coke Company.**—At the annual meeting held in Pittsburgh last week, D. Leet Wilson, J. Denniston Lyon and David B. Oliver were elected directors of the company to succeed M. H. Taylor, president of the Pittsburgh Coal Company; W. R. Woodford, vice-president of the same company, and R. H. Boggs. The retirement of Mr. Taylor and Mr. Woodford is taken to indicate that the two affiliated companies are to be more independently operated. The financial statement for the year ended October 31, 1906, was the best issued in the history of the company. The gross earnings increased 22.31 per cent., while the net earnings showed an increase of 132.73 per cent. There was also a decrease in the funded debt of more than \$350,000 and a reduction of liabilities of \$952,000. The output of coal was 1,578,674 tons over the previous year, or 31 per cent. Following is the statement of earnings: Profits, after deducting all expenses, bad debts and other losses, \$2,286,335.74; less, maintenance and repairs on river craft and depreciation charged off, \$706,961.12; interest paid on bonds, \$473,320; interest accrued on bonds, \$43,930; interest paid on certificates of indebtedness, \$52,833.33; interest accrued on certificates of indebtedness, \$26,000; interest accrued on car trust notes, \$16,968.13; taxes accrued, \$70,881.23; royalty on coal mined, reinvestment in coal lands and other properties and used to retire bonds, \$442,931.93. Balance for year, \$462,600; undivided profits, \$1,800,086; less undivided profits, October 31, 1906, \$2,062,686.

George G. Blackwell, Sons & Co., Limited, Liverpool, England, announce that after experimenting for about two years they have succeeded in producing a high percentage metallic manganese, which they are in a position to offer at lower prices than the manganese metal at present made by the aluminio-reduction process.



### The Niagara Disk Cutter and Flanger.

A machine for cutting and flanging disks, which is somewhat similar in principle to the rotary shears used for slitting and circling sheets, has lately been put upon the market by the Niagara Machine & Tool Works, Buffalo, N. Y. When fitted for cutting disks a pair of cutters is substituted for the removable flanging attachment. To flange the disks after they are cut to the proper size the stock is clamped in the circle arm, and the latter set at the proper distance from the flanging rolls, to allow the edge of the disk to extend beyond the lower flanging rolls an amount equal to the depth of the flange to be turned up. A pair of small rolls in front of the upper flanging roll are used to hold the material down while the upper flanging roll is gradually lowered by the hand wheel and screw, until the edge is bent at a right angle. The lower horizontal roll is driven by bevel gears. It takes only a short time to remove the flanging attachment, and substitute the cutters.

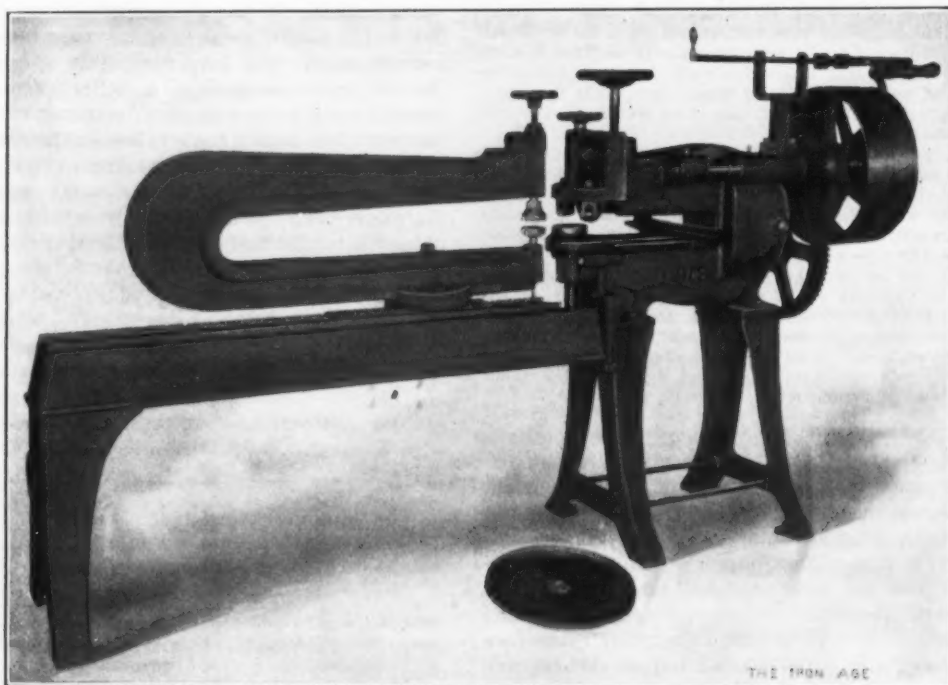
The height of the flanges that can be obtained depends upon the thickness of the stock. On heavy material it is possible to obtain higher flanges than on the

home basis. Undoubtedly Mr. Gates is in a position to make his promise effective.

### The Southern Power Company's Operations.

The Westinghouse Electric & Mfg. Company, Pittsburgh, Pa., is engaged in constructing electrical machinery which will form part of the power equipment for the largest power transmission plant in the world. This series of plants is owned by the Southern Power Company, Charlotte, N. C. The country around Charlotte is known as the greatest cotton mill district in the South. All the mills were until recently operated by steam power, each factory requiring boiler house, steam engines and the necessary shafting and belting for the operation of machinery. The district, however, is most bountifully supplied with rivers and waterfalls, offering opportunities for the utilization of power that was going to waste. This suggested the establishment of electric power transmission plants, the machinery being operated by water power.

All the available water power was acquired, plants installed, and the Southern Power Company operates al-



A Machine for Cutting and Flanging Disks, Built by the Niagara Machine & Tool Works, Buffalo, N. Y.

lighter gauges. No. 10 to 16 gauge soft sheet steel can be flanged from  $\frac{3}{8}$  to 1 in. high, No. 16 to 20 gauge  $\frac{3}{8}$  to  $\frac{1}{2}$  in. high, and on No. 22 to 24 gauge the height is limited to  $\frac{1}{2}$  in. The machine will cut up to No. 8 gauge, and flange up to No. 10. From square blanks disks from 14 to 50 in. in diameter can be cut and flanged. The throat of the cutting head is  $16\frac{1}{2}$  in., and throat of the circle arm 38 in. deep.

On similar machines made for lighter work it is the practice to use separate flanging and cutting heads rather than one alternately for both operations.

Consumers of finished iron and steel in the Alabama iron district are becoming stirred up over the long continued practice prevailing in that locality of being charged Pittsburgh prices plus freight rates from Pittsburgh to Birmingham. Thus far only the foundrymen consuming pig iron have been able to secure advantages from locating in the Birmingham District in the immediate vicinity of the producers. Consumers of finished iron and steel have had no inducements to locate in or near Birmingham, by reason of the proximity to works turning out this class of product. The Birmingham *Age-Herald* states that J. W. Gates has written to the Birmingham Board of Trade that he will be pleased to co-operate in the movement to put the home prices of steel and rolled iron on a

ready about eight stations in different parts of the district, furnishing about 150,000 hp. to a large number of mills. Of this power about 5 per cent. is used in the operation of cotton mill machinery, while the rest is used for lighting purposes. The establishment of these plants has given a tremendous impetus to the cotton industry in the Charlotte District, because of the great saving in the operation of mills and machinery, electric power being not only cheaper than steam power, but giving in many ways greater satisfaction than the old method.

All the electrical apparatus already installed by the Southern Power Company, amounting to hundreds of thousands of dollars, was furnished by the Westinghouse Company and was constructed at the east Pittsburgh works. The last order calls for apparatus to be supplied to the Rocky Creek and Ninety-nine Island power plants. This will include 12 4000-hp. water wheel type electric power generators and 18 2500-kw. transformers, including the switchboard appliances for controlling this machinery. The whole represents an outlay of \$500,000.

The general offices of the Pittsburgh Bridge & Iron Works Company, works at Rochester, Pa., have been removed from the Stevenson Building to the seventh floor of the Hartje Building, Wood street and First avenue, Pittsburgh.

## Trade Publications.

**Ventilating Apparatus.**—Quaker City Machine Company, Richmond, Ind. Catalogue. Pertains to the Evans Improved Challenge roller-bearing ventilating apparatus, particularly adapted for use in greenhouses, &c. Photographs and line drawings show the operation of this apparatus and a partial list of users is given.

**Wire Rope Tramways.**—Trenton Iron Company, Trenton, N. J. Catalogue. Size, 5% x 8 in.; pages 42. Contains a very complete description of the Bleichert system of wire rope tramways, adapted to the transportation of all kinds of materials, under every conceivable condition. The cables used are dealt with, and drawings show the details of a wire rope tramway installed at Cooper Hewitt & Co., New York, and tramways installed at various mines, &c., throughout the country. Half-tones from photographs illustrate tramways in operation in mountainous localities where steep grades and long spans occur.

**Motors.**—Electro-Dynamic Company, 11 Pine street, New York City. Circulars for insertion in loose leaf catalogue. No. 18, on the subject of motor drive, shows several applications of inter-pole variable speed motors to the direct driving of machine tools. No. 24 gives facts about the inter-pole motor, and shows where losses occur in an electric motor. These losses are claimed to be reduced to a minimum in the inter-pole motors. The motors are credited as being unsurpassed in regulation and efficiency in speed variation.

**Silica-Graphite Paint.**—Joseph Dixon Crucible Company, Jersey City, N. J. Illustrated booklet. Size, 7% x 9% in.; pages 24. Entitled "Through Frisco's Furnace." Particularly treats of the manner in which the modern steel frame buildings withstood the destructive fire in San Francisco last April. Seven half-tone engravings show buildings, the steel work of which was painted with Dixon's silica-graphite paint, and reports are given of the protective influence of the paint as demonstrated by investigations after the fire. It is also claimed that the paint was indirectly effective in helping the buildings resist the earthquakes, inasmuch as the paint preserves the strength of the steel by preventing corrosion.

**Crank Mechanism.**—Ramsey Engine Company, 472 Bullitt Building, Philadelphia, Pa. Pamphlet. This is descriptive of the Ramsey crank mechanism, a modified construction to replace the ordinary crank mechanism and improve the efficiency of simple acting steam or gas engines. *The Iron Age* of August 2, 1906, contained an illustrated description of this mechanism.

**Milling Machines.**—Newton Machine Tool Works, Twenty-fourth and Vine streets, Philadelphia, Pa. Catalogue No. 44. Deals with the Newton keyseat milling machines, for rapidly milling keyseats for feather keys, short "splines" and other work requiring one or both ends rounded up. These machines carry a horizontal and a vertical spindle, and the work requires no setting.

**Air and Gas Compressors.**—Ingersoll-Rand Company, 11 Broadway, New York City. Catalogue No. 36. Size, 6 x 9 in.; pages 184. Covers the complete line of Ingersoll-Sergeant compressors as built by this company. A brief description of each of the nine classes is given, followed by tables of sizes, &c. and illustrations of typical machines and representative plants. Two very important articles of an engineering character are included, one dealing with "Some Important Elements of Economy in the Straight Line and Duplex Types of Compound Air Compressors." Coming from a company building both types of machines, the treatment of this question may be accepted as authoritative and free from bias. The other article is on "Compound Air Compression," emphasizing its advantages and warning against constructions in which simplicity and reliability are sacrificed to a mistaken conception of economy. Other subjects discussed include "Air Receivers and Pressure Tanks," "Aftercoolers," "Air Reheaters," "Air Compressor Valves," and "Compressor Regulators." Several pages are devoted to new and valuable tables of information on compressed air.

**Cast Iron Pulleys.**—Geo. V. Cresson, Philadelphia, Pa. Catalogue. Size 6 x 9 in.; pages 70. A surprising amount of specialization in the manufacture of cast iron pulleys is evident from this publication. The treatment of the subject is as complete as might be expected from a text-book. In addition to a standard line of cast iron pulleys suitable for general machine shop and mill practice, there are shown some examples from among an almost unlimited range of pulleys specially designed for electrical and other types of high speed machinery where special construction or fittings are called for. The arrangement of the price-lists for selecting and ordering stock pulleys is especially commendable. All of the various types of standard cast iron pulleys are illustrated, and as special features are shown the Cresson patent loose pulley arrangement, the parapneumatic pulley and all-wrought steel loose pulleys. Quite a little of a technical nature concerning comparative tests of plain and parapneumatic pulleys is also included.

**Building Lighting.**—Nernst Lamp Company, Pittsburgh, Pa. Pamphlet. Subject, "The Lighting of Public Buildings." An extended exposition of the advantages of Nernst lamps in lighting of buildings of this class. Illustrations show a number

of important public buildings in which the lamps are in use. Among them are the Albright Art Gallery, Buffalo, N. Y.; the Union Station at Pittsburgh, the Detroit City Hall, Parliament Building, Ottawa, Canada, and others. A notable contract for the future will be the lighting of the Pennsylvania Railroad Terminal at New York City.

**Electric Lamps.**—Sawyer-Mann Electric Company, New York. Pamphlet. Styled an "Incandescent Lamp Dictionary." Gives a glossary of terms used in connection with incandescent electric lighting.

**Electrical Apparatus.**—Stanley-G. E. Electric Mfg. Company, Pittsfield, Mass. Blotters and index cards. Refer briefly to arc lights, outlet boxes, induction motors, generators, transformers and incandescent lamps made by this company.

**New Plant.**—Western Electric Company, Chicago. Booklet. Size 7% x 10% in.; pages 24. Contains an illustrated description of the company's new plant at Hawthorne, Ill., for the manufacture of power apparatus. The company is so broadly known as a manufacturer of telephone equipment that a very general distribution of this booklet will be made to call attention to the fact that it is now in position to build heavy power apparatus and switchboards. The illustrations and description give an excellent idea of the facilities. Two articles referring to the Hawthorne works appeared in *The Iron Age*, May 24 and May 31, 1906.

**Souvenir.**—McClary-Jemison Company, Birmingham, Ala. This company is distributing a useful souvenir in the shape of a flexible leather memorandum pad for desk or pocket use. On one side slotted corners hold a pad of memorandum sheets, one for each day in the month. When one of these sheets contains some item of value it may be preserved in a pocket in the interior of the case. Before the first of each month the company will send sheets for the succeeding month to those already favored with the pad.

**Turret Lathes.**—Windsor Machine Company, Windsor, Vt. Catalogue. Size 6 x 9 in.; pages 48. An exposition of the construction and operation of the Gridley automatic turret lathe and the results obtained with it. This is a machine unique among tools of its class, one of its peculiar features being its ability to use two or more tools attached to the turret one back of another. The turret, which is mounted on a horizontal axis, has another distinctive feature in that it allows a design of tool that does not overhang, but that is rigid at its cutting point, so that high cutting speeds, coarse feeds and heavy cuts may be employed. The lathe is made in both belt and motor driven forms in 2 and 3 in. sizes. The catalogue further describes the use of the various tools, illustrates examples of the work that may be done on the machine, gives useful information on cutting speeds and a short description of the Gridley semiautomatic piston ring machine for making piston rings ready for grinding on the edge. It will handle rings up to 6 in. in diameter, concentric or eccentric, and will make 300 to 400 per day of 10 hr.

**Iron and Steel.**—Pratt & Inman, Worcester, Mass. Circulars and stock list. The first contains lists of extras on iron and steel and tables of weights. All of the various shapes of bar and band iron, structural materials, rods and sheets, and hot or cold rolled Bessemer, open hearth, nicked, crucible or tool steel are carried. The stock list gives the sizes and grades of all of these materials regularly on hand.

**Clay Machinery.**—Canton Pump Company, Canton, Ohio. Pamphlet. Descriptive of clay machinery for potteries, &c., including filter presses, laboratory presses, Blunger mills, clay washing plants, pug mills and auxiliary apparatus in general including pumps.

**Engines.**—Atlas Engine Works, Indianapolis. Bulletin No. 132. Refers to medium speed automatic four-valve engines for heavy duty. An extended treatment of the economical advantages of the four-valve engines, and descriptions of the various parts are given, together with specifications of the sizes of the self-contained class B and heavy duty class F engines.

**Shoe Machinery.**—Peerless Machinery Company, Boston, Mass. Catalogue. Describes a number of machines for shoe manufacturing of which this company makes a specialty, including a rapid eyeletting machine, gang eyeletting machine, universal skiving machine, automatic perforating machine, improved tip press, rapid cementing machine, rapid inker, and automatic cap scourer.

**Power Pumps.**—Goulds Mfg. Company, Seneca Falls, N. Y. Booklet. This is an advance catalogue and only covers a small part of the company's complete line of power pumps. An accompanying leaflet refers to Gould's new duplex water lifter.

**Stamp Milling Machinery.**—Traylor Engineering Company, New York City. Catalogue I. Size 6% x 9% in.; pages 55. Pertains to the line of stamp mills, mortars, ore feeders, rock and ore crushers, amalgamating pans, settlers, agitators, clean-up pans and barrels, amalgam safes, retorts and accessories manufactured by this company.

**Refractory Materials.**—Laclede Fire Brick Mfg. Company, St. Louis, Mo. Pamphlet. This calls attention to the use of Bauxite blocks for lining the hot zones of rotary Portland cement kilns, and gives the results of a test carried on at the plant of the St. Louis Portland Cement Company.



## Fluctuations in Metal Prices from 1895 to 1907.

(With Supplement.)

In the accompanying chart are presented the fluctuations in price of some of the important metals during the period from 1895 to 1907, the prices being the computed monthly averages of those given in the New York metal report in *The Iron Age* week by week. In order to condense the volume of the chart it has been necessary to give three columns of figures. One column represents the price of pig tin in cents per pound, another the price of lake copper in cents per pound, while the third column gives the price of spelter and lead in cents per pound and tin plates per 100-lb. box in dollars. It is interesting as well as instructive to note that practically all of the metals reached the highest figures for the entire period during the latter half of 1906. Pig tin was the only exception, the price of this metal having anticipated the high levels of the others by an artificial corner, which reached its culmination in May. The cost of manufacturing tin plate has been materially reduced in recent years, consequently the high price was reached several years ago.

**PIG TIN.**—The year 1906 was an eventful one and one full of surprises to the pig tin trade. The visible supply steadily decreased for the first four months of the year, reaching the low figure of 11,104 tons at the end of April. This strong statistical position, coupled with a market almost bare of stocks in New York and aggressive bidding up of prices on the London Exchange, resulted in cornering the market so far as spot stocks were concerned. Prices on the London market advanced to the hitherto unequalled figure of £215. In New York spot tin sold on May 14 and 15 at 49 cents per pound in 5-ton lots. After the culmination of the corner which was reached on this day prices quickly receded, dropping back 10 cents per pound in a month. Although the lowest level of the year was reached in January, when the average price was 37.36 cents, the June price was but 38.97 cents and the July price 37.18 cents. Resuming their upward trend in August, prices advanced steadily and by the end of October tin again sold at over 43 cents. From this time until the end of the year fluctuations were within comparatively moderate limits above 42 cents. The aggressive attitude taken by a leading American consuming interest during the last half of the year brought forth considerable unfavorable comment, chiefly from holders of the metal both in this country and abroad. In order to bring down the market, metal was even re-shipped from America, but this failed to break prices to any extent; still it is an open question whether it served to keep the London market under £200 or not. Sufficient to say that in spite of many predictions from well informed sources that the market would again pass the £200 mark the latter part of the year, they were not fulfilled. The high prices which prevailed undoubtedly stimulated production to a considerable extent, not so much in the opening of new mines but in more systematic working of old ones, opening up shafts which had formerly been abandoned, due to the running out of ore and more careful working of the dumps and tailings. In fact, the shipments from the Straits Settlements were considerably in excess of the estimated production in that district. The old mines of Europe were worked to some extent. Search for a substitute for pig tin has been of interest to many consumers, but the low melting point of this metal and the ease with which it amalgamates itself with others are valuable properties. It is true that the use of a solderless can by certain canning industries has lessened the demand in some quarters, but at the same time new uses have been found. The electrical industry is using more and more tin all the time and an increased use is being found for it as an alloy in bearing metals.

**COPPER.**—A heavy buying demand by consumers requiring ingot metal to fulfil their contracts for finished products carried prices higher than any year since the famous Secretan Syndicate in 1880. It should be re-

called that this was before the development of the electrical industry, which now makes such heavy demands for ingot copper and the yearly production in 1880 was considerably less than the monthly production to-day. During the month of January there were recessions in price, which continued throughout February. An increasing demand was felt in April, which continued well into the third quarter of the year, but fluctuations were within comparatively minor limits, and it was not until September that prices passed 19 cents. In this month it became apparent that if American consumers were to secure copper in competition with European melters, they would be compelled to bid high for it and prices rose rapidly, the December average being over 23 cents. One of the most important factors of the year from the mining standpoint was the settlement of suits of long standing in Silver Bow County, Mont., which permitted the carrying on of work in mines which had long been closed through injunctions. In the lake districts there were a number of misfortunes, such as fires in shafts and mines, which retarded the output. The shortage of fuel and labor all over the country restricted production. While production did not increase materially, probably not over 6 per cent., the exports to Europe fell off and the imports into this country increased, so that there was available for domestic consumption, taking into consideration the slight increase in production named, about 30 per cent. more metal than the year previous. The exports during 1906 amounted to 209,544 gross tons, as compared with 243,438 tons in 1905; the imports are figured at 106,000 tons, December being partially estimated, while during 1905 the imports were only 94,280 tons.

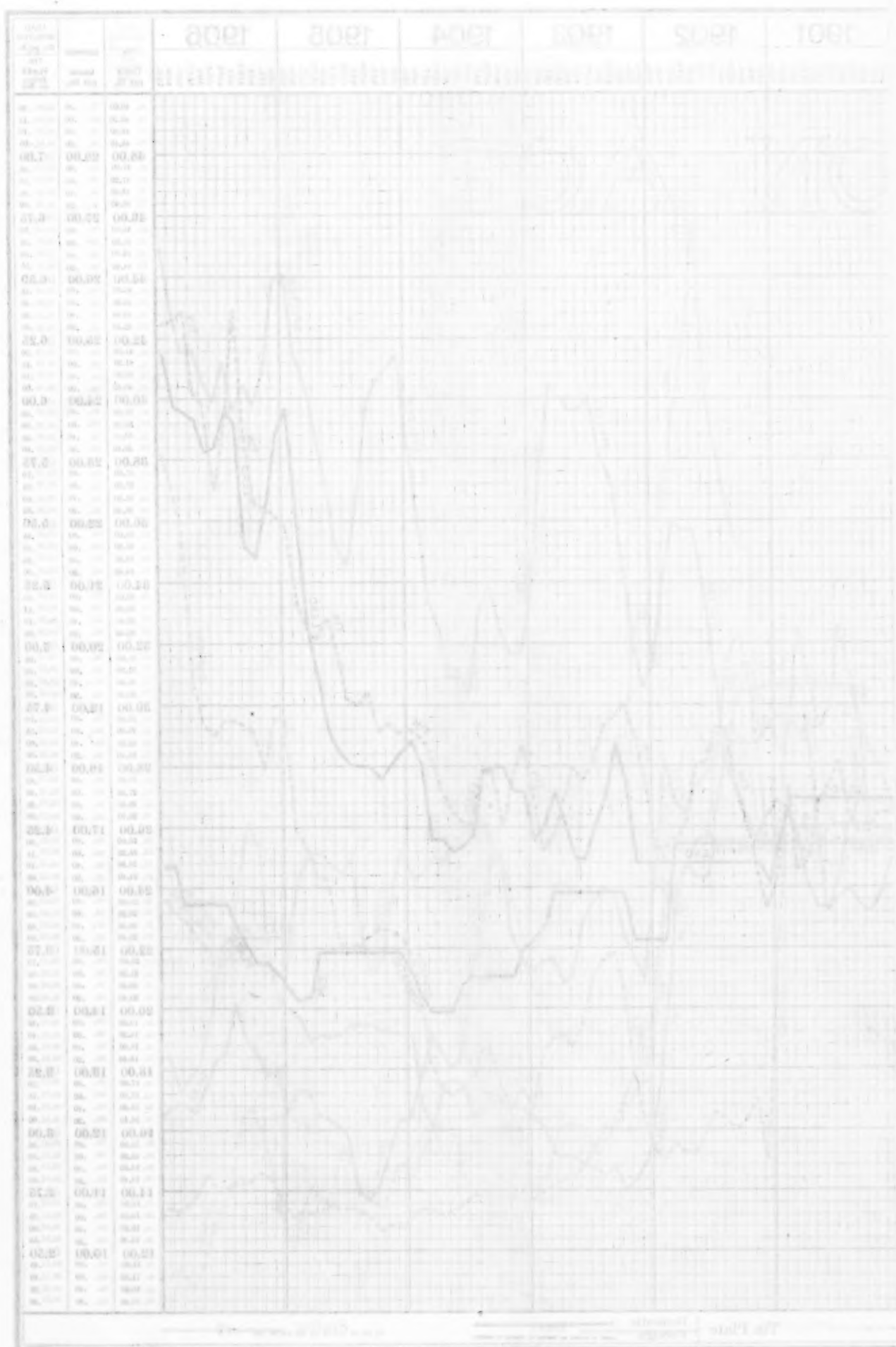
**SPELTER.**—A heavier demand from galvanizing works and brass mills kept the spelter market active throughout a greater portion of the year. The year opened with high prices prevailing, which declined gradually until the end of May, when 5.95 cents was quoted in New York, the lowest for the year. From this level advances were made slowly until by the end of December it recovered all of the lost ground, closing higher than the prices reached during the early part of the year.

**LEAD.**—A demand from consumers in excess of the supply throughout the greater part of the year made the lead market an interesting one. The lowest prices prevailed between February 14 and April 30, when the American Smelting & Refining Company sold lots of 50 tons at 5.35 cents per pound. From this level the price gradually advanced until, on December 13, 6 cents was asked and received for 50-ton lots in the New York market. At all times during the year spot lead was held in New York City at a premium of 15 to 25 points, the latter difference prevailing for the greater part of the time. A new policy was inaugurated by the American Smelting & Refining Company of accepting orders only at price current on date of shipment.

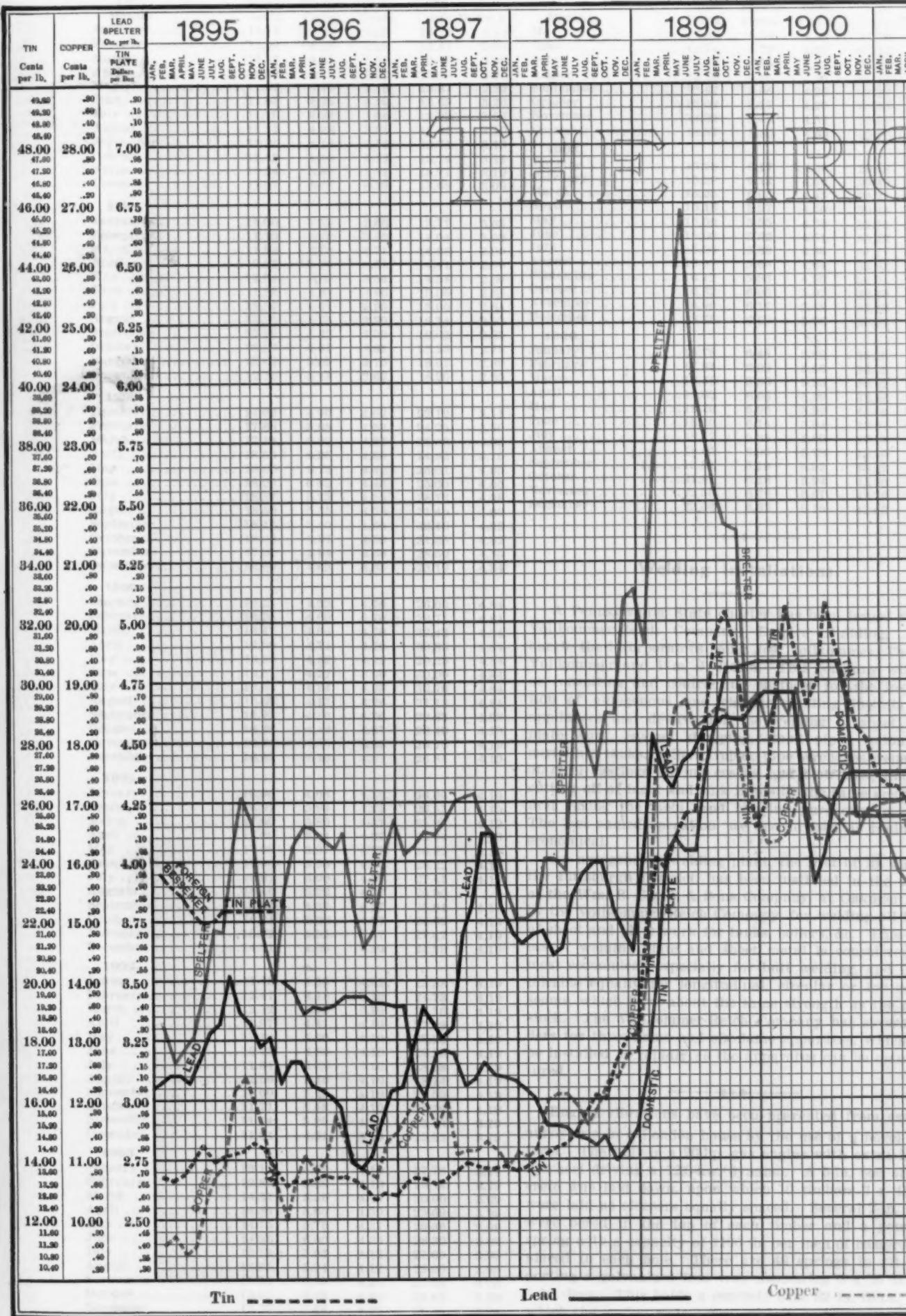
**TABLES OF PRICES.**—The following tables give the monthly prices on which the chart is based:

	Lake copper.	Spelter.	Lead.	Tin.	Tin plate.
1895. Months.	Cents.	Cents.	Cents.	Cents.	Dollars.
January .....	9.55	3.32	3.07	13.47	3.95
February .....	9.67	3.15	3.10	13.42	3.90
March .....	9.30	3.20	3.10	13.57	3.87
April .....	9.53	3.27	3.08	14.00	3.80
May .....	10.25	3.47	3.16	14.53	3.75
June .....	10.69	3.71	3.28	13.94	3.75
July .....	10.81	3.70	3.32	14.17	3.80
August .....	12.10	4.07	3.52	14.26	3.80
September .....	12.37	4.26	3.37	14.37	3.80
October .....	11.92	4.16	3.33	14.60	3.80
November .....	11.37	3.68	3.23	14.46	3.80
December .....	10.56	3.49	3.26	13.81	3.80
1896.					
January .....	9.97	3.88	3.07	13.16	3.50
February .....	10.62	4.07	3.16	13.37	3.47
March .....	11.03	4.14	3.16	13.35	3.37
April .....	10.78	4.13	3.06	13.39	3.40
May .....	10.99	4.08	3.04	13.52	3.39
June .....	11.65	4.05	3.01	13.45	3.40
July .....	11.27	4.12	2.97	13.51	3.44
August .....	10.87	3.81	2.74	13.34	3.44
September .....	10.75	3.64	2.71	13.17	3.44
October .....	10.70	3.71	2.77	12.72	3.41
November .....	11.25	4.03	2.92	13.04	3.41
December .....	11.40	4.17	3.04	12.87	3.40

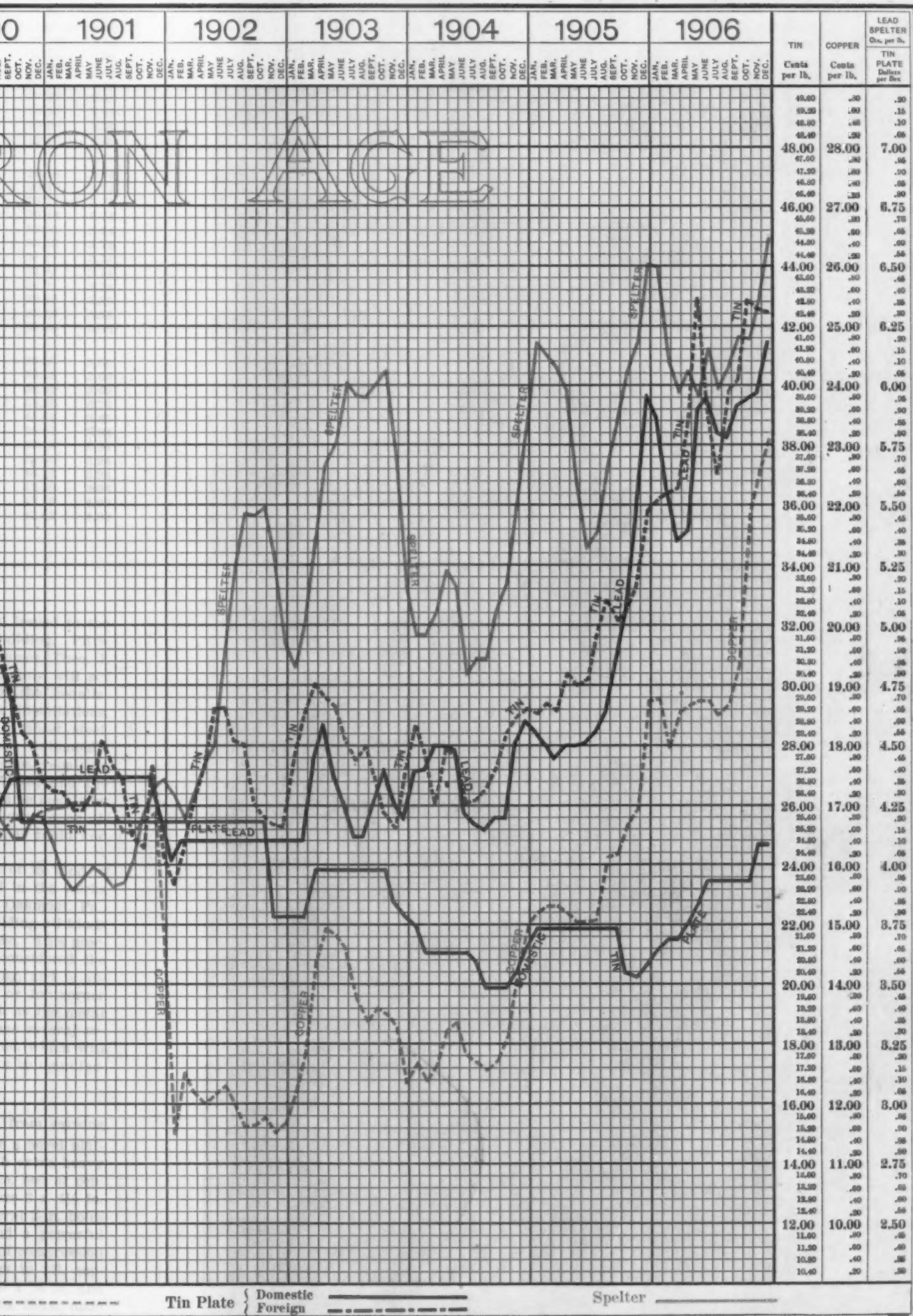
# Lead, Tin, Spelter, and Tin Plate in 1895 to 1907





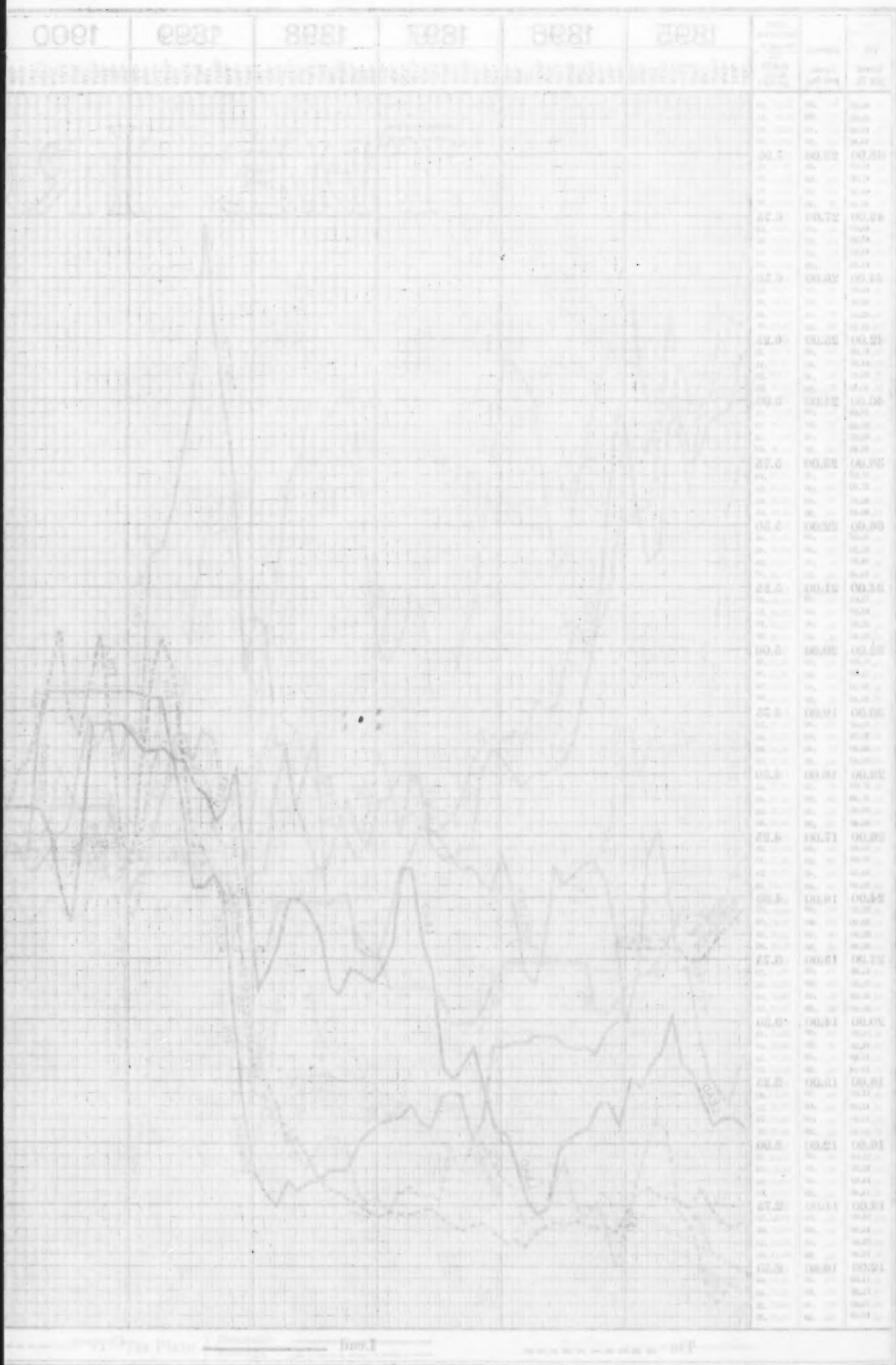


**Fluctuations in the Prices of Copper,  
New York from**



er, Lead, Tin, Spelter, and Tin Plate in  
om 1895 to 1907.





Fluctuations in the Prices of Copper in New York from 1890 to 1900

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1897.	Lake copper. Cents.	Spelter. Cents.	Lead. Cents.	Tin. Cents.	Tin plate. Dollars.
Months.					
January	11.78	4.02	3.05	13.26	3.40
February	12.00	4.06	3.22	13.47	3.09
March	11.87	4.12	3.39	13.40	3.02
April	11.50	4.11	3.33	13.23	3.20
May	11.97	4.17	3.26	13.37	3.22
June	11.03	4.25	3.30	13.69	3.20
July	11.10	4.27	3.68	13.92	3.06
August	11.12	4.28	3.81	13.86	3.10
September	11.25	4.14	4.12	13.71	3.16
October	11.12	4.10	4.12	13.74	3.11
November	10.84	3.89	3.81	13.77	3.10
December	11.07	3.75	3.70	13.68	3.09

1898.	Lake copper. Cents.	Spelter. Cents.	Lead. Cents.	Tin. Cents.	Tin plate. Dollars.
Months.					
January	11.00	3.75	3.66	13.77	3.05
February	11.19	3.79	3.69	14.04	3.02
March	11.95	4.00	3.71	14.26	2.90
April	12.05	4.00	3.61	14.41	2.90
May	12.04	3.95	3.64	14.54	2.89
June	11.85	4.65	3.86	15.05	2.85
July	11.59	4.51	3.95	15.60	2.84
August	11.85	4.35	3.99	16.14	2.82
September	12.25	4.62	3.99	16.02	2.85
October	12.37	4.61	3.81	17.25	2.75
November	12.69	5.09	3.70	18.07	2.80
December	12.79	5.13	3.62	18.20	2.89

1899.	Lake copper. Cents.	Spelter. Cents.	Lead. Cents.	Tin. Cents.	Tin plate. Dollars.
Months.					
January	14.02	4.90	4.02	22.12	3.11
February	17.66	5.68	4.53	24.25	3.50
March	17.55	5.99	4.37	23.86	4.03
April	18.56	6.25	4.30	24.82	4.10
May	18.65	6.72	4.42	25.61	4.05
June	18.20	6.02	4.45	25.69	4.05
July	18.37	5.79	4.55	28.72	4.38
August	18.50	5.55	4.56	31.40	4.60
September	18.47	5.40	4.60	32.40	4.82
October	18.03	5.37	4.59	31.35	4.82
November	17.00	4.64	4.58	28.52	4.83
December	16.69	4.68	4.65	25.19	4.84

1900.	Lake copper. Cents.	Spelter. Cents.	Lead. Cents.	Tin. Cents.	Tin plate. Dollars.
Months.					
January	16.21	4.55	4.70	26.00	4.84
February	16.25	4.69	4.70	29.71	4.84
March	16.41	4.60	4.70	32.42	4.84
April	17.00	4.71	4.70	30.85	4.84
May	16.80	4.52	4.22	29.25	4.84
June	16.31	4.27	3.90	30.00	4.84
July	16.31	4.24	4.03	32.76	4.84
August	16.55	4.17	4.26	31.13	4.84
September	16.75	4.10	4.36	29.63	4.68
October	16.73	4.10	4.37	28.46	4.19
November	16.75	4.20	4.37	28.10	4.19
December	16.87	4.19	4.37	26.84	4.19

1901.	Lake copper. Cents.	Spelter. Cents.	Lead. Cents.	Tin. Cents.	Tin plate. Dollars.
Months.					
January	16.90	4.08	4.37	26.60	4.19
February	16.97	3.94	4.37	26.55	4.19
March	17.00	3.89	4.37	25.95	4.19
April	17.00	3.94	4.37	25.94	4.19
May	17.00	3.97	4.37	26.82	4.19
June	17.00	3.95	4.37	28.22	4.19
July	16.97	3.90	4.37	27.41	4.19
August	16.50	3.92	4.37	26.90	...
September	16.50	4.02	4.37	25.04	4.19
October	16.71	4.20	4.37	24.62	4.19
November	16.82	4.32	4.37	27.47	4.19
December	14.71	4.35	4.10	24.39	4.19

1902.	Lake copper. Cents.	Spelter. Cents.	Lead. Cents.	Tin. Cents.	Tin plate. Dollars.
Months.					
January	11.45	4.28	4.02	23.38	4.19
February	12.47	4.18	4.10	24.73	4.19
March	12.12	4.29	4.10	26.16	4.19
April	11.97	4.41	4.10	27.29	4.10
May	12.10	4.50	4.10	29.26	4.19
June	12.23	4.88	4.10	29.29	4.19
July	11.94	5.23	4.10	28.28	4.19
August	11.59	5.46	4.10	28.14	4.19
September	11.60	5.45	4.10	26.55	4.19
October	11.71	5.48	4.10	25.76	4.19
November	11.44	5.29	4.10	25.43	3.79
December	11.61	4.91	4.10	25.33	3.79

1903.	Lake copper. Cents.	Spelter. Cents.	Lead. Cents.	Tin. Cents.	Tin plate. Dollars.
Months.					
January	12.13	4.82	4.10	27.76	3.79
February	12.80	5.00	4.10	29.14	3.79
March	14.31	5.36	4.44	30.06	3.99
April	14.85	5.65	4.59	29.69	3.99
May	14.75	5.75	4.37	29.36	3.99
June	14.56	6.00	4.25	28.30	3.99
July	13.73	5.95	4.12	27.60	3.99
August	13.35	5.94	4.12	28.00	3.99
September	13.58	6.00	4.26	27.06	3.99
October	13.42	6.05	4.40	25.83	3.99
November	13.25	5.68	4.25	25.35	3.84
December	12.30	5.15	4.19	27.53	3.79

1904.	Lake copper. Cents.	Spelter. Cents.	Lead. Cents.	Tin. Cents.	Tin plate. Dollars.
Months.					
January	12.62	4.95	4.39	28.75	3.75
February	12.34	4.95	4.40	27.98	3.64
March	12.60	5.05	4.50	26.19	3.64
April	13.19	5.22	4.50	27.99	3.64

Months.	Lake copper. Cents.	Spelter. Cents.	Lead. Cents.	Tin. Cents.	Tin plate. Dollars.
January	13.28	5.14	4.48	27.76	3.64
June	12.74	4.79	4.22	26.14	3.64
July	12.62	4.85	4.17	26.28	3.60
August	12.50	4.85	4.15	26.74	3.49
September	12.67	5.06	4.20	27.27	3.49
October	13.09	5.17	4.20	28.53	3.49
November	14.22	5.49	4.51	29.00	3.56
December	14.87	5.80	4.60	29.27	3.66

1905.	Lake copper. Cents.	Spelter. Cents.	Lead. Cents.	Tin. Cents.	Tin plate. Dollars.
Months.					
January	15.18	6.17	4.56	29.18	3.74
February	15.25	6.12	4.50	29.49	3.74
March	15.25	6.06	4.45	29.21	3.74
April	15.18	5.97	4.50	30.43	3.74
May	15.00	5.55	4.50	30.04	3.74
June	15.00	5.32	4.51	30.36	3.74
July	15.03	5.38	4.56	31.71	3.74
August	16.07	5.66	4.64	32.85	3.74
September	16.12	5.83	4.85	32.21	3.74
October	16.62	6.05	5.07	32.47	3.55
November	16.90	6.17	5.48	33.46	3.53
December	18.75	6.50	5.96	35.84	3.59

1906.	Lake copper. Cents.	Spelter. Cents.	Lead. Cents.	Tin. Cents.	Tin plate. Dollars.
Months.					
January	18.78	6.48	5.86	36.36	3.66
February	17.94	6.09	5.56	36.48	3.69
March	18.50	5.96	5.35	36.62	3.69
April	18.62	6.05	5.39	38.86	3.76
May	18.70	5.95	5.90	43.08	3.85
June	18.69	6.14	5.94	38.97	3.94
July	18.47	5.98	5.80	37.18	3.94
August	18.65	6.06	5.78	39.90	3.94
September	19.31	6.19	5.92	40.32	3.94
October	21.81	6.18	5.94	42.90	3.94
November	22.50	6.36	5.97	42.70	4.09
December	23.06	6.62	6.19	42.62	4.09

### Welding Installations.

A Pennsylvania State charter has been issued to the Vollkommer-Reich Company, Empire Building, Pittsburgh, the incorporators being Jos. Vollkommer, Theo. J. Vollkommer and Wm. J. Reich. This company will act as consulting and contracting engineer for the installation of autogenous and electric welding installations, appliances and devices for the welding of sheet steel, plate work, enamel stamping, stand pipes, automobile parts, air tanks, boilers, tubes, pipe wrenches, repairing of steel castings having cracks and blowholes, and the cutting off of ingot and sink heads by the same metals by first fusing the metal and blowing pure oxygen on it. The last named operation, we are advised, is rapid and economical.

An autogeneous welding plant, the first of its kind in the Pittsburgh District, has been installed in the works of the Wm. B. Scaife & Sons Company, at Oakmont, Pa., by the Vollkommer-Reich Company, for welding all kinds of sheet and plate work for tanks, boilers, &c. This process of welding plate and sheet metal is considered the most economical, especially for butt welding, and is applicable equally for longitudinal, circular or for corner seams, which have about the same strength as the metal stock. The Vollkommer-Reich Company has several orders for three-flame and six-flame apparatus, which will be installed as rapidly as the apparatus can be manufactured.

Engine vibrations have been prevented from causing annoyance in a London house by the use of a novel platform. The unit is a 20-hp. gas engine with extra heavy flywheel driving a 12.5-kw. dynamo. A 5-in. bed of concrete was laid down, upon which 10 timbers 3 x 4½ in. were laid as sleepers equally spaced. Several 2-in. holes were bored in the top of each timber and a powerful spring with a capacity of 1100 lb. per inch of compression placed in each hole. There are 48 springs in all, supporting a galvanized iron tray measuring 5 x 10 ft. and 5 in. deep. This holds a concrete base 32 in. thick, upon which the engine rests. The exhaust and compressed air connections are of flexible metallic tubing and the other connections of rubber tube. When the unit was first started it was found to sway longitudinally. This has been corrected by means of a timber at each end touching the tray but not lifting it from the springs.





who have been badly disappointed in promised shipments.

Some of the tool builders who do business directly with the consumer have ceased to accept orders for tools, deliveries of which are a long time ahead, excepting as memoranda, with no agreement as to price or delivery. With them the problem is a simple one as compared to that of those who sell through the dealers, and these constitute by far the larger class. The interests of the dealer must be guarded—as long as he finds customers his orders must be accepted. The manufacturer, as a rule, feels like going no further than to discourage him from accepting business. The effort to better deliveries has entered into the raising of prices. Some orders recently accepted for long delivery were at figures which are high, even as compared with current lists.

The manufacturers argue that it is inevitable that some time or other business must slacken, and when that time comes there will be a wholesale cancellation of orders, partly because customers will not need the tools and partly because they will know that prices must fall with a decreasing demand. No one appears to expect such a condition this year. Yet the manufacturer must guard against the day when he may have on his hands a shopful of new machines built at high cost of labor and materials, which would have to be sold in a lower market. It is probably a long cry to that day, but the prudent business man thinks it worth while to consider it seriously. He argues that there can be no loss by repelling business whenever possible in such a market as this, and if he could be within a few weeks of deliveries he would be able to round the corner into less prosperous conditions with much better results. This is planning on a somewhat gradually declining market, and not a sudden serious slump.

The practice of the machinery trade is to permit cancellation of orders, except where a special tool is involved. Anything in the regular lines may be canceled at the option of the customer. This applies to the consumer, as the customer of the manufacturer and the dealer, and to the dealer as the customer of the manufacturer. Occasionally a manufacturer has held a dealer or a consumer to his contract, but such an instance is unusual. When the manufacturer makes this a custom his relations with the dealer are governed accordingly, so that the case cannot often occur. It is usually considered fair to protect the dealer in this respect. In fact, to-day many stock orders are taken with the understanding that the dealer will not be held if he should find no customer, or if his customer should abrogate the contract. The suggestion has been made that under present conditions the consumer should be compelled to live up to contracts, but this has not been seriously considered. A cancellation to-day is received with much pleasure by a manufacturer, for it helps to relieve him of the strain of the demand made upon him from all sides.

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### Modern Factories.

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To say that a plant is modern does not give it the distinction it once did, for many new plants now deserve to be so termed. Factories are no longer built and equipped in the cheapest manner possible. In planning a new plant nowadays more time is often spent in working out details before starting to build than is taken up afterward in actual construction, and first cost is deemed secondary to means of producing economically. Another consideration which has become of prime importance, where formerly it seemed to be ignored, is the probable

future growth. Few plants, if any, are put up to-day without providing to extend them whenever it becomes desirable, and extensions are designed to fit into the original scheme. In a measure, it is the unit or sectional bookcase idea carried into factory construction. Each factor in the general plan is simply extended. The buildings are added to usually on one end, or sometimes a duplicate parallels or continues its predecessor, being practically a counterpart in design and equipment of the corresponding older building. The industrial railroads, spurs from contiguous railroads (for plants are now seldom situated with other than intimate access to transporting mediums), and in general all handling facilities are so designed that their range of action may be increased almost as simply as one block may be piled on another. The power plant when first laid down is located where it will remain substantially in the center of the system whatever the direction of expansion, and it usually allows space for at least a doubling of the equipment before a larger building will be required. In the shop tools may need some rearrangement, but this contingency is presupposed, and foundations, power connections, &c., all allow for the easiest accomplishing of rearrangement. The limitations line shafts imposed no longer exist; individual motor drive allows unlimited latitude in locating machines, and even group drive but slightly restricts. The drafting room, pattern shop, foundry, machine shop and power house, individually or simultaneously, may be increased in capacity, but at no stage in the gradual growth is the harmonious operation or appearance of the plant as a whole impaired.

Besides providing for expansion without complication, a modern manufacturing plant, in the present accepted sense of the term, must provide for the following: Convenient shipping facilities, systematic progressive handling of the material through the works, fireproof construction of the buildings, ample lighting—artificial and natural—and ample heating and ventilating, and finally and above all economical tools, by which is meant not necessarily those with the most refinements, but those which for the total amount represented in interest on the investment, depreciation and running expense produce the most work in the least time.

What has been said above in general applies to all factories for the production of machinery and machine tools, an example of which is described in the initial article in this issue, but it would hardly be appropriate to discuss the subject without some reference to plants essentially for products of a special nature wherein the art of manufacture probably has not as yet attained its highest development and radical changes in the equipment occasionally become desirable. It is the natural tendency to build a containing structure of more or less permanent character and suited to the accommodation of the machinery which it is then intended to install. That this is a mistake is realized when the form or size of the building prevents the adoption of improved machinery and processes. It then becomes imperative to rebuild and at an expense often almost prohibitive. Profiting by this experience designers of such plants are now inclined to take the attitude that the equipment is not merely initially but always of first importance, and the building is regarded as only a protection to be constructed as cheaply and simply as consistent with convenience and comfort and preferably of a type that may be easily replaced entirely if necessary, but if possible with the use of most of the older material in the rebuilding. From this standpoint ornate design and more than absolutely required stability are useless extravagances.



## CORRESPONDENCE.

**The Mexican Iron Industry.**

*To the Editor:* With regard to that portion of T. F. Witherbee's recently published letter which contains animadversions upon statements made in a report of the Consul General of the United States, quoted in an article with the above heading in *The Iron Age* of December 20, I do not feel called upon to enter a defense. Since Mr. Witherbee, however, has seen fit to characterize the "whole article" as "a marvel in its way in the number and character of its errors and false statements," I must ask you to kindly permit me to reply so far as may be necessary to vindicate my own reputation for truthfulness.

The "errors" and "false statements" for which I am personally responsible, according to your correspondent's indictment, are four in number, although one of them is simply described as a statement which "verges on the gratuitous." In a spirit of generosity I include it in the catalogue. I will take the statements in their order:

The old iron plant situated near this city, which was spoken of as a "ruin," Mr. Witherbee contends is not "in ruins," and asserts that it "has been in operation within six or seven years." Perhaps the description "partially dismantled and abandoned," would have been a more accurate designation of this interesting establishment. It is true that some little work was done there about seven years ago. The building still stands; some of the equipment is also in evidence, but, taken altogether, it is a woeful reminiscence to which the word "ruin" might be applied without giving offense even to a philological purist.

The assertion that "small prospect" existed that the works of the Mexican National Iron & Steel Company would start up again was based upon the reply received to a direct question addressed by the writer to a gentleman very close to the late management. The statement, of course, had reference to a resumption of activity by the same company.

The other two "false statements" are of a nature so delicate as to preclude the possibility of their being proved or disproved by an outsider, since they hinge upon the financial status of the company in question. Mr. Witherbee himself admits that it is "true in part" that the operation of the works was not profitable, hence the stoppage. If the company did not "borrow heavily from local banks," then public opinion in Durango is grievously at fault.

Mr. Witherbee is nursing a serious hallucination, at least in so far as the writer is concerned, when he presumes to insinuate that the "whole purport and tenor" of the article was to "deter the investment of capital in iron and steel business in Mexico," and that it was "inspired" by such a motive. Personally, I trust he may succeed in selling the property to a vigorous and competent company, for Durango is sadly in need of some industrial stimulus from the outside.

J. J. D.

DURANGO, MEXICO, January 17, 1907.

**Fluorspar.**

*To the Editor:* In your issue of December 20 Eric John Ericson claims priority to the scheme of chemical analysis which I presented to the public for the rapid analysis of fluorspar in your issue of November 22. I was totally unaware at that time that Mr. Ericson had worked out this method some three years previous to my publication, and as it is found we differed only in a few details I must, of course, waive my claims for being the first to apply to this mineral the special process I described in my article. The only real novelty I have added is the determination of  $\text{CO}_2$  by means of tartaric acid, by which I overcome serious difficulties that would beset the use of a mineral acid in the rapid determination of  $\text{CO}_2$  by difference in an alkalimeter. His comments on the analysis given as slow are, of course, trite, as it showed 7.20 per cent. undetermined in a possible 100. This was probably silicates containing soda and potash, possibly orthoclase, and possibly some smithsonite. The open hearth industry was interested mainly in the per-

centage of  $\text{CaF}_2$ , and so I did not go into the separation necessary to get the sum total of the constituents.

I regret that I cannot agree on the small amount of  $\text{H}_2\text{SO}_4$  required in his scheme. It is necessary to digest completely the sample in sufficient acid. I therefore recommend 10 c. cm. to each gram of fluorspar, for fear that if too little should be used the hydrofluoric acid would not be driven out and would therefore react on the glassware or porcelain vessel in the latter stage of the analysis. With proper dexterity and manipulative ability, no spurring would bother the operator. With the asbestos plate arrangement and with hand regulation of the Bunsen burner the reaction proceeded very calmly and quietly.

There is one great advantage of using 1 g. over  $\frac{1}{2}$  g. in the fact that the size of errors in weighing small amounts of constituents is reduced one-half. The phenomena of silica remaining in the calcium sulphate from the reaction of  $\text{H}_2\text{SO}_4$  on fluorspar is remarkable, and shows a peculiarity of  $\text{SiO}_2$  that has escaped notice. I would be glad to see some investigation made to determine what goes on and why HF evolved does not combine with it. I think the points of chief value in this method are its simplicity, quickness and accuracy, and elimination of expensive apparatus that is difficult to preserve in the older analytical schemes.

RUDOLPH BOLLING,

Head Chemist Nova Scotia Steel & Coal Company, Limited.  
NORTH SYDNEY, CANADA, January 18, 1907.**Mining and Mineral Exhibits at Jamestown.**

Joseph Hyde Pratt, chief of the Department of Mines and Metallurgy of the Jamestown Exposition, has issued circulars giving the scope of the exhibits to be made in his department. These exhibits will be partly in the Mines and Metallurgy Building, and partly in a pavilion which is being erected near that structure. The former will contain displays of minerals, while in the latter will be shown the most important forms of concentrating machinery.

Although the exposition is national in its scope and importance, the mineral resources of the Southern States will receive very full attention. Certain minerals are found in larger quantity and mined more extensively in the Southern States than in other parts of the country.

In planning the exhibits the Department of Mines and Metallurgy has decided to attempt to secure a more adequate representation of the different phases of the American cement industry than has been possible at previous expositions. With this end in view, Edwin C. Eckel, the cement expert of the United States Geological Survey, has been appointed commissioner in charge of cement exhibits.

One of the prominent features will be the concentrating plant operated by the United States Geological Survey, which will be similar to the one erected at Portland, Ore., at the time of the Lewis and Clark Exposition, and which was maintained by the Survey up to October 1, 1906. A complete assay laboratory will be operated in connection with this concentrating plant. One of the features of the work of this plant will be the testing of sea sands of various portions of the Atlantic Coast, which are expected to show the possibility of separating a very clean quartz sand for glass making at a reasonable rate.

About one-half of the Mines and Metallurgy Building has been reserved for group exhibits to be made by the various States, and nearly all of this space has been applied for.

The third annual dinner of the M. H. Treadwell Company, 95 Liberty street, New York City, was given January 12 at Rector's. Covers were laid for thirty-two. This is an annual courtesy extended by the company to its office employees, superintendents and foremen, to assist in promoting sociability and good fellowship. Toasts were responded to by J. H. Killinger, president; H. N. Dougherty, vice-president; M. H. Treadwell, treasurer; A. F. Colling, purchasing agent; A. H. Stein, assistant secretary; W. E. Farrell, manager of the Lebanon plant, and R. McCarty, manager of the Myerstown plant. Music was furnished by Charles Von Barr.

## Canada's Relations with the United States.

### Secretary Root's Visit.

TORONTO, January 19, 1907.—Speculation is busy on the subject of Secretary Root's mission to Ottawa. Any one who has turned over the piles of exchanges received in a Canadian daily newspaper office this week must have been struck with the frequency of editorial references to the Secretary's visit. Though they nearly all speak on the subject they do not speak in unison. One thing in which they appear to agree is that Mr. Root's presence at Rideau Hall at this moment betokens more than the personal friendship that is known to hold between him and Earl Grey. By common consent it is taken for granted that the visit marks an advance toward a better understanding between Canada and the United States.

The guesswork, supplemented by the surmises or assurances of correspondents in Washington and London, has built up a fabric that may turn out to be not altogether a castle in the air. In the scheme thus projected by the still blindfold publicists all the questions referred to the former Joint High Commission are to be comprehended, the paramount question of trade relations not having been dropped. Reciprocity, indeed, is plainly the topic uppermost in the minds of the writers of Canadian editorials on Mr. Root's visit, and it is when we come to their remarks on this point that we discover the common impulse to these editorials and at the same time their point of disagreement. Nearly all the current writing to which Mr. Root's visit has moved the newspaper men of Canada bears particularly upon reciprocity, some of it for the *quid pro quo* principle and some of it against. The assumption that the American Secretary of State's appearance in Ottawa has anything to do with reciprocity may be unwarranted, but none the less, it is strongly and generally held.

### Double Tariffs.

Mr. Root's address in Washington last Wednesday before the National Convention for the Extension of Foreign Commerce is regarded as significant in this connection. His unreserved declaration in favor of a double tariff is taken as the announcement of a new departure of which this country may be the first to receive the benefit. No one imagines that a member of the American Cabinet would express himself so unequivocally on a matter of so great national and international importance except after the deliberation and approval of his colleagues and the authorization of the President. That the United States Government should take the present moment to make known its views on external trade policy, and that it should select as the utterer of those views a Secretary who was on the eve of a visit to Canada, the United States' relations with that country being in treaty, is thought to have some relevance to the negotiations proceeding between Canada and the United States. According to a statement published some years ago by John Charlton, one of the Canadian members of the Joint High Commission, practical agreement in respect to reciprocity was reached by the commission, but this question along with the others had to be suspended because a general settlement was blocked by the then insoluble controversy over the Alaskan boundary. There is a disposition to believe that the reciprocal arrangement then approached is again under consideration, and Mr. Fielding's new intermediate tariff may be the scale of duties drawn up by the Canadian members of the Joint High Commission.

At all events the Canadian intermediate tariff and Mr. Root's emphatic statement in favor of a maximum and a minimum tariff look like counterpart ideas, and are important pieces of the circumstantial evidence on which is based the newspaper conviction that reciprocity is now being bargained for. As a piece of evidence on the other side, a statement made in the House of Commons by Sir Wilfrid Laurier a few days ago is not without importance. It was to the effect that Canada had ceased to concern itself with the trade policy of the United States, and is no longer pursuing that country for reciprocity. Such a statement does not exclude the possibil-

ity that negotiations might be begun without further solicitation on the part of the Laurier Government. Certainly the intermediate tariff is a standing offer of reciprocity to all countries that choose to meet the Canadian Government's conditions.

### For and Against Reciprocity.

As has already been said, the assumptions and comments of the Canadian press in reference to Mr. Root's business at Ottawa are accompanied by expressions of opinion as to the desirableness of reciprocity with the United States. While there is plenty of positive opposition to the idea of a trade arrangement with the United States, there is also quite a surprising degree of favorableness toward an equitable bargain. Indeed, so far as those newspapers are concerned that approve reciprocity, equitableness is a secondary consideration. They stand for lower duties, whether an equivalent for reduction in the duties is or is not conceded by the countries favored. Besides these exponents of the pro and contra sides, there are several newspapers very open minded on the question. Those circulating in agricultural districts are for the most part in favor of extending the intermediate tariff to the United States in exchange for a freer market in that country for farm products, in which a large border trade might be built up. The farmers are more insistent in their views in respect to tariff policy than they were in the case of the revision of 10 years ago. They continue to protest against several features of the new tariff scheme, and through the Dominion Grange they are circulating petitions against the continuance of the bounties on iron and steel. These petitions are being taken up by constituencies, and several of them have already been placed in the hands of members of the House of Commons, who are submitting them to the Government.

### Joint Control of the Niagara.

A matter of common concern on which the two countries have already made material progress toward agreement is the conservation of the waters of the Niagara and preservation of the sublimity of the Falls. The International Waterways Commission has brought its investigation of conditions on this boundary river to a harmonious conclusion and has fixed the limit of diversion for each side. Its estimate of the surplus available for power purposes and its partitioning of that surplus between the two countries have been accepted by the United States, for these findings governed in the framing of the Burton act. One of the provisions of that act makes it the duty of the United States Government to use its endeavors to bring Great Britain into a treaty for the regulation of Niagara's power resources and the preservation of its greatest scenic feature.

As if to meet the United States half way, the Dominion Government has introduced a bill to restrict the exportation of hydro-electric power produced in Canada. This legislation goes farther than the words quoted from its title indicate. It really places the Dominion Government in charge of the Canadian waters of the Niagara, with definite authority to restrict the utilization of these for power purposes—purposes which had previously been taken little cognizance of by the Federal Government. Concessions for the development of power on the Niagara had been granted or withheld by the Government of Ontario, as if such business pertained wholly to the provincial jurisdiction. When the Dominion measure becomes law Sir Wilfrid Laurier will have such a command of the Canadian side of the Niagara question as will better enable him to enter into a treaty respecting it. In the House recently Mr. Aylesworth, the Minister of Justice, who has charge of the Niagara bill, took occasion to praise the fair and reasonable spirit of the American members of the International Waterways Commission. Mr. Aylesworth, it may be recalled, was one of the two Canadian members of the tribunal whose decision settled the Alaskan boundary dispute, Mr. Root being one of the American members. The Canadian Minister of Justice also expressed his hope that the Niagara would soon be under treaty management. The liberality of Secretary Taft's treatment of power companies under purely Canadian ownership will also contribute toward a good settlement of the Niagara question.

C. A. C. J.



## Tin Cans and Pure Food.

BY B. E. V. LUTY.

A great stir has been created among packers of moist food products, tin can manufacturers and tin plate makers by the establishment of a standard tin can for moist food products. In connection with the Pure Food law passed by Congress and signed by the President, and becoming operative January 1, 1907, it became necessary for the Food Standards Committee of the Department of Agriculture to create certain standards. In the committee's Circular No. 19, approved by the Secretary of Agriculture, there is a reference to "suitable containers," this expression having the following foot note appended:

Suitable containers for keeping moist food products, such as syrups, honey, condensed milks, soups, meat extracts, manufactured meats and undried fruits and vegetables, and wrappers in contact with food product, contain on their surfaces, in contact with the food product, no lead, antimony, arsenic, zinc or copper or any compounds thereof or any other poisonous or injurious substance. If the containers are made of tin plate they are outside soldered and the plate in no place contains less than 113 mg. on a piece 5 cm. square, or 1.8 grains on a piece 2 in. square.

It is now established that the above pronouncement does not have the force of law. At the same time it seems probable that a complete failure to attempt to comply with the spirit of the standard would be observed at Washington and would lead to an effort to have absolute legislation on the subject.

### Present Attitude of the Trades.

The packers have asked the tin can manufacturers what they propose to do, and the can manufacturers have replied that they stand ready to furnish cans of any material for which the tin plate manufacturers will accept orders, charging the packers merely for the extra cost thus involved. The tin plate manufacturers, in their turn, profess, on the one hand, their entire willingness to furnish tin plate carrying any average coating per box that may be called for; but, on the other hand, they have so far failed to promise to give any guarantee with any tin plate that it will conform to the standard, and it does not appear that they can ever be induced to make any such promise. The attitude of the great majority at least of the packers appears to be that, in view of the difficulties, they will not attempt to do anything toward complying with the letter of the law. Within the past fortnight the can makers have, in accordance with the annual custom, announced their prices on cans for the season, and these prices are announced as applying to cans of the same standard as in previous years.

It is only natural that the three trades should assume these attitudes in the circumstances. To the packers is given no guarantee that a compliance with the letter of the standard would enable them to secure more money for their products. Some of them have in the past tried the experiment of using heavier coatings, with quite unsatisfactory results from a business standpoint. The can manufacturer, in turn, is powerless to do anything without the tin plate manufacturer, since cans are made on a very small margin. The average packers' can sells at considerably less than one-third over the bare cost of the tin plate consumed. The tin plate manufacturers again have conclusive business and technical reasons for refraining from giving a guarantee based upon the Government standard, and the case is naturally complicated by the very high price of pig tin.

### The Committee's Viewpoint.

There is reason to believe that when the Food Standards Committee adopted its standard for tin cans it did not feel that it was calling for any great departure. The specified coating, 1.8 grains on any piece 2 in. square (the exact language is important), figures out 2 lb. and  $\frac{1}{4}$  ounce per base box, and this is but a trifle, if any, above the average coating per box which is now furnished. The ordinary canning tin plate shades 2 lb. per box by a mere trifle, if at all. Accordingly, it seems that the committee expected to increase the tin consumption by but a trifle, but may have thought it was putting upon the tin plate manufacturers the burden of distributing the coating more evenly, and that this was a burden which could be

borne. The alring which the subject has been given in trade circles has shown conclusively that if this was the viewpoint of the committee, the viewpoint was quite inconsistent with the actual conditions.

Unofficial expressions which have been given indicate that if proper efforts are made to correct evils which the committee believes have existed no drastic attempt will be made to enforce the letter of the law. Should there be important complaints as to the condition of canned food products when offered to the ultimate consumer, a movement may be expected to have a tin can standard established by Congressional enactment.

Such an effort, however, would undoubtedly involve a hearing to all the trades interested. They have important matter to present and could, beyond all question, prevent the passage of a law absolutely enforcing the standard which has been named. These objections come under two heads: the necessity of so rigid a standard and the practical impossibility of complying with it.

### The Necessity for the Standard.

It has never been shown that tin or iron forms poisonous compounds with food products of any description. Poisons may possibly be formed, and analysis may show tin or iron present, but in such cases these metals are purely incidents; they neither encourage the formation of the compounds nor increase their poisonous nature. Ptomaines are very poisonous compounds formed in the process of putrefaction of albuminous matter, and their formation is not contributed to in any way by any metal whatever. Their danger is aggravated by the fact that their presence in serious quantities is not recognizable through the medium of the senses. Iron compounds, on the other hand, give a black color to the food product and in larger quantities are recognized by the taste. While not necessarily conducive to health, their presence is impressed on the senses long before they reach proportions sufficient even to be deleterious, while in no event can they be considered poisons. Tin need not be discussed, as the tin surface exists whatever the thickness.

Poisonous compounds of lead with food products can be formed, but there is no possibility of their being present in injurious amounts, on account of the minute quantity involved. The solder used by can manufacturers is necessarily high in tin, and with those cans which contain the maximum of solder on the inside the quantity is still very small.

### The Difficulty of the Standard.

The difficulties of the standard recently named are very great, making it practically an impossible one. In the first place, in the preparation of many food products it is a necessary part of the process that a small hole be left in the head, which is closed after the cooking by a drop of solder, a minute portion of the solder being thus left in contact with the contents, and while a piece of tin plate may have been left under the hole there is no guarantee that it will separate the solder from the contents. This conflicts with the letter of the standard.

It is distinctly stated that the cans are outside soldered. Outside soldered cans are those made by the large can manufacturers, who use automatic machinery and make lock-seam cans. The small packers, and some of the large ones, make their cans themselves and of necessity make hand made cans, which have a lap seam. With the lap seam there is much more likelihood of some solder sweating through to the inside. This is regarded as an advantage, making a stronger can, and, indeed, where the lock seam is used, it is necessary, in making the can strong enough for many purposes, to sweat some solder through the lock seam. Furthermore, the hand made can has the head soldered on from the inside, while the machine made can has the head soldered on the outside.

To debar the inside soldered can would be to forbid packers to make their cans themselves and throw the business to the large concerns, which have the patented machinery for making outside soldered cans. The chief of these is the American Can Company, which was formed in 1901 by combining the business of no less than 89 concerns.

Another difficulty is the determination of the amount of coating. It is an open question whether a chemical analysis finds all the tin actually existing in the sample. There is no doubt, on the other hand, but an absolute certainty, that different chemists would find results differing from each other by more than a permissible error in a connection like this, since the required coating is at the rate of 2 lb. per box, and a small variation from this represents a large cost of tin.

A difficulty, not of the law, but of the tin plate manufacturer, and one of the reasons which compels him to refuse to give a guarantee to the can maker, is the impossibility of identification. The tin plate cannot be made to carry with it the means of identification. It would be difficult in some instances to trace the can to the can manufacturer, while at that point the trail would certainly be lost. The can maker usually buys from a number of different producers. Even should he buy from but one maker he makes a great variety of cans for a great variety of purposes, the packing of moist food products being only one of many uses. The tin plate producer would, then, be shipping both guaranteed and unguaranteed plates, and would have no means of knowing whether or not the can in question was made from a guaranteed plate.

#### The Unevenness of Coating.

An investigation into this subject has brought out some very interesting facts which otherwise would not be noticed. Cases have been cited where "A" grade charcoal plate, to all appearances carrying the 3 lb. coating per box which this grade is supposed to carry, ran as low as 1.65 lb. per box in some places. Welsh coke tin plates, which average 1.8 lb. per box, have been found to carry in spots as low as 1.40 lb., although the appearance gave no intimation of the fact.

There are two chief causes for irregularity in coating. Mentioning the less important first, it is necessary in tinning to keep the finishing rolls in the tinning machine coated with tin, and this is done by dropping a dipperful of tin into the space formed above their "bite." This is done after every 10 sheets or so have been tinned. The sheets first tinned thereafter carry a heavier coating than those last tinned.

A more important cause of variation is the irregularity of the steel sheet itself, and this, chiefly through the difference in labor cost, shows a great difference between Welsh and American practice. Welsh tin plate, as noted above, carries an average of about 1.8 lb. per box coating. American tin plate carries close to 2 lb. per box, yet in places may not be coated any more heavily than the Welsh plate. Tin plates are finished by a pair of highly polished rolls, immersed in palm oil, which squeeze off the excess coating. Obviously, if the steel sheet is of irregular thickness, the tendency will be to allow an excess of tin in the low places. At 2 lb. per box, 7.5 cu. in. of tin are spread over both sides of 31,360 sq. in. of steel, or at the rate of 0.00012 or one eight-thousandth of an inch thickness for the tin on each side. The thickness of the steel sheet may vary by several ten-thousandths of an inch, and the wonder is that more tin is not wasted than really is.

American practice is to roll packs 20 x 56 in., occasionally 28 x 60 in., and shear the steel to 20 x 28 in. immediately after the hot rolling, the sheets being carried this size through all the processes, and if 14 x 20 in. is required they are slit in the sorting room. Welsh practice is totally different. Labor is very cheap, and the sheets are cut to 14 x 20 in. and even in many cases to 10 x 14 and 10 x 20 in. at the hot mills, these small pieces being handled through all the processes. When they reach the tinning process it is obvious that their hollow places will waste much less tin than do the large sheets involved in American practice.

Welsh practice gives four cold roll passes in nearly all cases, while American practice involves either two or three passes, usually three, often two and never more than three. Cold rolling narrow sheets enables the Welsh mill to apply more pressure, and with the greater number of passes a much smoother surface is given, which involves less tin. In American practice it has been found that the smoother surface is at the expense of ductility,

reducing it below the requirements for lock seamed cans.

The American pack of 20 x 56 in. has the steel in the 56 or 28 in. direction, and this direction is maintained through the cold rolls. The high places are in this direction, on the edges of the pack if the rolls are "full" and along the center when the rolls are "hollow." They are always one or the other, the happy medium being only attained in transition. The American cold rolling can do little to eradicate this irregularity. With Welsh practice, whether 20 x 42 or 20 x 56 in. packs are rolled, the 20-in. becomes the long dimension, and the cold rolling is done at right angles to the direction of hot rolling, so that the high places are much reduced. It is claimed in the United States that this reversal of direction injures the texture, but the Welshman saves the tin and at the same time puts it on more uniformly.

In both countries the practice has been worked out intelligently according to local conditions. The Welshman may have steel which will stand the practice better than American steel; the writer does not profess to know. Tin costs the same in both countries, but Welsh wages are very much lower than American, and accordingly the Welshman is prodigal of labor and saving of tin. The American is saving of tin, but not at the expense of labor. It would enormously increase the labor cost in America to handle through the various processes 10 x 14 in. and 14 x 20 in. sheets. Female labor is employed largely in Wales. Girls are at present at work as picklers, receiving in some cases only 8 shillings per week. Men are employed exclusively in pickling in the United States, and the minimum wage is certainly not under \$15 a week, so that granting that the girls in Wales may do but two-thirds as much work, the pay is proportionately but one-fifth as much.

The speed of the tin rolls is much slower in Wales than in the United States; speeds as low as 80 to 90 in. per minute are common, and this conduces to a smaller and more evenly distributed tin coating. American speeds are much greater, and if an effort were made to reduce them the employers would immediately be confronted with a demand for increased wages, as tinning is piece-work.

The comparison here made does not reflect discreditably upon the manufacturers in either country; the problems have been worked out according to conditions. It is given because of a point which is likely to come up in this agitation, although to the writer's knowledge it has not yet been raised. The American tin plate manufacturers may be asked: "Why can you not put on as uniform a tin coating as do the Welsh mills, so that with a little over 2 lb. per box you can meet the condition?"

The net result of the investigation of the tin plate manufacturers thus far has done no more than bring out an intimation that to give reasonable assurance of a minimum of 2 lb. per box, on every piece 2 in. square that could be cut from any sheet in the box, it would be necessary almost to double the average coating per box, which would add in the neighborhood of 75 cents per box to the cost, at the present price of tin. Even with this the tin plate manufacturers could not give a guarantee in the nature of protecting the can maker or the canner.

#### Previous Experiences.

The agitation for a heavier tin coating is an old one; it has received government sanction at this time merely because the whole subject of food packing has been so thoroughly aired. Packers have often tried the experiment of using more heavily coated tin plate and have invariably lost money by doing so; otherwise the practice would have grown. Apples and blueberries are by far the hardest on the tin. A Baltimore apple packer tried using "A" charcoal instead of ordinary coke, involving 3-lb. coating instead of about 2-lb., and kept a record of his damages. He found that the damages against the "A" charcoal ran only a little less than those against the ordinary cokes, and the difference was quite insufficient to pay for the extra cost of the tin plate. Since then he has used ordinary cokes exclusively. Other packers have tried using better grades, but found it impossible to sell their goods for more money. The present grades are ordinary coke, carrying about 2 lb. to



the box; "best coke," carrying about  $2\frac{1}{2}$  lb., and "A" and "AA" charcoal, carrying respectively about 3 and  $3\frac{1}{2}$  lb. per box. It has been suggested that the present agitation may give rise to new brands, created for the purpose of employing a plate which will pass. Such an outcome would be very unfortunate.

## Shops of the Midvale Steel Company.

The December number of the *Progress Reporter*, published by the Niles-Bement-Pond Company, 111 Broadway, New York City, is devoted to the works of the Midvale Steel Company, Nicetown, Philadelphia, Pa. It is mostly made up of large full page illustrations showing views of the notable tools in that plant, and contains a brief introductory account of the shops from which the following abstracts were taken:

The Midvale Steel Company was among the first of the large steel companies of this country, and at its works the blooms for the Brooklyn Bridge were rolled, and the castings for the first built up steel gun produced in this country were made. At the present time the company confines itself to the more costly forms of steel products, including armor plate, finished guns of all calibers, ordnance material, marine engines, heavy forgings, large steel castings, tool and automobile steel, axles, tires and steel tired car wheels.

The company's works have grown from a small beginning until at the present time they cover a large area. Growing under these conditions, in an already crowded community, economy of space was a prime consideration, and every effort has been made to provide facilities to obtain as large an output as possible from a given amount of floor space.

In these shops some of the most interesting work in the country is done, both in regard to the size of the pieces handled and the extreme accuracy necessary. There are, too, a number of purely manufacturing departments, where such work as locomotive and car wheel tires and car wheels are turned out in large quantities and at a minimum cost.

The tire shop has an average output of 8.3 tires per mill per day of 22 hr. This record is the average for a period of six months, and includes all types of tires, about one-quarter of the output being large locomotive tires. On 36-in. tires the output is 10 to 12 Page tires, turned all over and bored in 22 hr. The tire shop is equipped with Niles-Bement-Pond tire mills; especially designed for turning car and locomotive tires. These mills have many more times power than standard mills, and are designed for taking heavy cuts in steel of about 70 point carbon and having a tensile strength of 120,000 lb. With mills of less weight and power this output would be impossible.

The armor plate department has an exceptionally fine shop, equipped with very large machines especially designed for the service. In this shop there is one of the largest machine tools ever built, an enormous pit planer, weighing over 500,000 lb., and capable of finishing the four edges and one face of an armor plate 24 ft. long by 12 ft. wide by 12 in. thick at one setting. All the various movements of this machine are operated by electric motors.

### The Equipment in General.

Practically all the equipment of the Midvale shops is less than 10 years old. Any machine which in design or power is not up to the mark has to make way quickly for a modern tool. The result is that the Midvale equipment is wonderfully efficient.

The methods of handling material are very carefully worked out, and besides a complete system of railway tracks, all the shops and storage yards are covered by electric traveling cranes. The shops are very high, giving good light, and in the finishing shop there is ample space about the machines, every facility for doing accurate work being provided. In the manufacturing shops the machines are set close together to economize space and to save time in handling material.

The illustrations in the *Progress Reporter* show the equipment of the shops, practically all of which was fur-

nished by the Niles-Bement-Pond Company. In the following the tools are taken up in the order in which they are illustrated.

### The Large Lathes.

The first view taken in the projectile department shows two long lines of lathes that are used for finish machining projectiles of all types from 4 to 13 in. Among the notable tools are two 100-in. crank shaft lathes, one engaged in threading the end of a large nickel steel cylinder for a hydraulic press, which has four carriages, two on each side of the bed, and raising blocks to increase the swing to 125 in.; and another, machining a crank shaft 26 in. in diameter by 26 ft. long, which is one of two similar machines each weighing about 300,000 lb. and capable of being increased, in swinging capacity to 153 in. by means of raising blocks. On a crank shaft inspection bed shafts of the size above mentioned are placed for testing their accuracy. Other large lathes include a motor driven 90-in. finishing lathe, turning a partly completed 7-in. gun; a motor driven 90-in. forge lathe machining a steel piston for a hydraulic press, the swing of which may be increased to 139 in. with raising blocks; another forge lathe of same size (there are five in all, each weighing over 300,000 lb.) machining a 20-in. shaft 35 ft. long; and still another, boring a  $32\frac{1}{2}$ -in. hole in a forged steel cylinder. The next view shows the location of these 90-in. and some of the six 72-in. forge lathes, also installed, the one in the foreground being engaged in turning the hoop of an 8-in. gun and one directly behind it slicing an ingot 50-in. in diameter. A 100-in. hydraulic ingot boring and slicing lathe is shown cutting off the riser of a large steel casting, although it is principally used for boring ingots for hollow forgings, its capacity being a 26-in. hole in solid stock and the feeding accomplished by hydraulic pressure while the gearing merely holds the bar back so that all back lash is taken up and the tool is prevented from jumping if a soft spot is encountered. A double hydraulic ingot boring lathe, motor driven, is capable of taking work 60 ft. long by 32 in. in diameter, boring two holes 14 in. in diameter simultaneously, the boring bars at each end of the machine being fed by hydraulic pressure. Three gun boring and turning lathes are illustrated; one of 72-in. swing, motor driven, is facing the breech of a 7-in. gun; another of 60-in. swing is facing the breech of an 8-in. gun, its feeds and traverses of the boring bench being obtained through electric motors; and a third, of 72-in. swing, motor driven, is boring the chamber of a 7-in. gun, the bore of which must be within  $\frac{3}{1000}$  of an inch of size, and is in reality finished to within half of that allowed variation. Of kindred interest is a rifling machine rifling a 7-in. naval gun.

### Boring and Drilling Machines.

In the next class of large tools is one of three 102-in. boring and turning mills, turning a forged steel cylinder 72 in. in diameter; a 54-in. slotting machine, used for slotting large crank webs, gun forgings, &c.; a 36-in. geared slotting machine, slotting a forged steel crank web 14 in. thick; one of three 40-in. geared slotting machines; a 60-in. planer planing a nickel steel gun jacket for a 3-in. gun; a motor driven 10-ft. rotary planing machine planing the end of a crank shaft weighing about 280,000 lb.; a horizontal boring, drilling and milling machine, having a 7-in. spindle and handling a  $2\frac{1}{2}$ -in. drill in cutting off the long hold of a 280,000-lb. crank shaft forging. Another machine of the same class is milling the edges of a gun shield; still another, motor driven and having a 7-in. spindle, is boring the recoil slide of a 6-in. gun mount, and another is doing the same work, but using a special fixture so that the cylinders and main bore can be finished at one setting, the two cylinders being bored at one time. The next, also a motor driven boring, drilling and milling machine, is milling the hinge plate seat in a 6-in. gun.

Crank boring is done by a special, the next illustration showing one of 60-in. size boring a 29-in. hole,  $12\frac{1}{4}$  in. deep in a connecting rod, by the trepanning process, i. e., by cutting the stock out in a core, using three tools each taking a cut 1 in. wide. A similar machine is shown finish boring an 18-in. hole in a crank web, and a hori-

zontal boring and drilling machine, boring large bolt holes in a connecting rod. The following view is that of a group of motor driven ingot slicing lathes, each provided with sixteen tools, eight on a side, and capable of slicing ingots from 10 to 25 in. in diameter. For boring, facing and turning locomotive and carwheel tires of all types, there is a group of 66-in. and 84-in. tire mills. Another group of the same mills of the 66-in. size, especially designed for boring tires, have fixed cross rails, and tires are held to the tables by clamps and centered by special knees or jaws provided with set screws. A group of motor driven heavy single axle lathes are used for turning locomotive driving axles all over.

The armor plate machines are among those specially notable for their size. A universal horizontal boring, drilling and milling machine, motor driven, is shown milling the edge of a 9-in. armor plate. Its spindle is 8 in. in diameter and capable of swiveling to any angle, so that it is especially useful for drilling and milling irregular shaped plates, gun ports, sighting holes, &c. A similar machine is at work on a torpedo station shield. Two 6-ft. motor driven rotary planing and sawing machines are illustrated, one sawing a 7-in. casemate plate, and the other a 9-in. armor plate 9 ft. wide and 17½ ft. long, taking a cut 1½ in. wide. A plate, being cut, its edges are ground on a motor driven armor plate grinding machine. In the view given it is grinding the edge of a 7-in. hardened armor plate. The grinding wheel is mounted on a column which is automatically fed longitudinally along the bed of the machine, and the spindle has both vertical and axial adjustment.

#### The Large Planers.

The planers for armor plate work are even larger. One, a 10-ft. heavy armor plate planer, motor driven, through pneumatic clutches, entirely without belts, is shown, engaged in planing a 7-in. armor plate. One of the largest machines ever built is a 12-ft. pit planer, weighing over 500,000 lb., which will finish the four edges and one face of an armor plate 24 ft. long by 12 ft. wide by 12 in. thick at one setting. Its cross rail and heads are arranged to swivel to any angle, while the drive, like that of the machine last mentioned, is by electric motors through pneumatic clutches, and all of the various traverses of the machine are by means of electric motors controlled from switchboards mounted on the columns. A motor driven breast planer is used chiefly for machining the edges of armor plate, being very convenient for this work because the cutting head may be arranged to cut in either or both directions of its transverse on the cross rail, and the latter swivels to any angle and has longitudinal traverse along the bed, so that the tool may be quickly brought to the work. A double breast planer, motor driven, can finish armor plates 14 ft. wide by 40 ft. long by 12 in. thick. The next illustration is of another single motor drive breast planer (there are seven of them in all) planing the back of a 9-in. armor plate.

Three universal drilling and boring machines, motor driven, are illustrated, one drilling a sighting board, and another an oblique hole in a 6-in. armor plate. All are particularly useful for heavy drilling at various angles. A motor driven 10-ft. universal radial drill is shown drilling a gun shield 5 in. thick. The last view is of the armor plate erecting floor, wherein may be seen two 60-ton Niles electric traveling cranes, one in the foreground having a 60-ton trolley and a 5-ton auxiliary hoist, and the other two 30-ton trolleys. On this floor the armor plate is erected in the form in which it fits the ship.

An agreement between the iron companies in the Central district of Russia is to be ratified at a conference at St. Petersburg this week, it is reported. Allotments are to be made on the basis of average sales in 1904, 1905 and 1906. Works which do not use any of the products of their blast furnaces and which depend upon sales only will be allowed an extra 300,000 to 600,000 poods per annum (a pood equals 36 lb. avoirdupois). The total sales are estimated at 36,500,000 poods, or 586,007 gross tons. The following works consume part or the whole of their production: Hughes, Dnieprovienné,

Brinnisk, Russo-Belge, Donetz Youriefka, Droujkovka, Mariefka; while the following works depend upon sales only: Krivoirog, Olkorala, Kratomatrorskal, and Al-manaina.

## PERSONAL.

W. S. Barstow & Co., New York City, and Portland, Ore., have recently enlarged their power plant department and placed Perry West at its head. Mr. West has been identified with a number of important engineering projects throughout the country. Associated with him is Carl F. Schreiber, who has done notable work in the engineering field in New York and vicinity. Another addition to the staff is Rudolph Klein, gas engine expert.

Ambrose Swasey of the Warner & Swasey Company, Cleveland, O., was elected first vice-president of the National Board of Trade at its annual convention at Washington, D. C., last week.

Douglas Alexander, president of the Singer Mfg. Company, New York, has been elected a director of the Commercial Trust Company of New Jersey.

Frederick W. Denton, formerly connected with the Minnesota Iron Company and in recent years identified with copper mining in Michigan, has been appointed general manager of the Michigan mines of the Copper Range Consolidated Company.

James Bonar & Co., Incorporated, Pittsburgh, has secured David M. Kerr of Detroit, Mich., to represent it in that district for the sale of its Pittsburgh feed water heaters, Bonar oil filters, gauge cocks, exhaust feeds, &c.

Odley H. Hartsoff, who has been superintendent of the blooming mill department of the Shenango Works of the Carnegie Steel Company at New Castle, Pa., has been made general superintendent of all the company's plants in the New Castle district. He succeeds John Oursler, recently made district manager of the Carnegie Steel Company for all the Shenango Valley mills.

Changes among officials at the Homestead Works of the Carnegie Steel Company have been announced as follows: G. L. Lunt, superintendent of the 32, 84, and 140-in. mills, to a position in the Pittsburgh offices; W. E. Crouch, superintendent of the 30, 42 and 128-in. mills, succeeds Mr. Lunt; J. S. Foster, appointed assistant to W. E. Crouch; C. R. Laird, appointed night superintendent of the same mills; E. E. Covert, superintendent of the 30, 42 and 128-in. mills, vice Mr. Crouch; W. N. Crawford to succeed Mr. Covert.

At a meeting of the Board of Directors of the American Iron & Steel Mfg. Company, Lebanon, Pa., held January 8, H. M. Sternbergh resigned as vice-president and general manager and James Lord was elected his successor. Mr. Lord has heretofore been manager of the company's Lebanon plants.

James H. Baker, formerly vice-president and general manager of the Solid Steel Tool & Forge Company, Brackenridge, Pa., has been elected president of the company and will vigorously take in hand the further prosecution of its business and the plans for its material expansion.

James A. Aupperle, Indianapolis, Ind., will demonstrate his method of carbon determination before the Pittsburgh section of the American Chemical Society at the Carnegie Technical Schools, Pittsburgh, on the evening of February 21.

N. M. Peterson, general superintendent of the Mingo Junction and Bellaire Works of the Carnegie Steel Company, has resigned. He has been connected with the Carnegie Company for 36 years, starting at the Edgar Thomson Works, in a minor position.

The annual meeting of stockholders of the Harbison-Walker Refractories Company was held in Pittsburgh, January 21. The officers were re-elected, consisting of S. C. Walker, president; H. W. Croft, vice-president; Hamilton Stewart, secretary, and Wm. Walker, treasurer.



## OBITUARY.

NOAH W. GRAY, a prominent figure in the Lake Superior charcoal iron trade for nearly 35 years, died at Marquette, Mich., January 9, after being ill of pneumonia but a few days. Born at Romeo, Mich., January 10, 1847, he was educated at Dickinson Academy in that town, and later spent a year at the University of Michigan. In 1873 Mr. Gray and William Burt built Carp furnace at Marquette, Mich. Later in turn he became connected with the Peninsular furnace at Detroit and afterward took charge of Ashland furnace at Ashland, Wis. In 1899 Mr. Gray and Charles H. Schaffer were associated in the reconstruction of the Carp furnace at Marquette, and were identified with that enterprise until the furnace was sold to the Pioneer Iron Company. The Boyne City Charcoal Iron Company was then organized, with Mr. Schaffer as president and Mr. Gray as secretary and treasurer, the company rebuilding at Boyne City, Mich., the old St. Ignace furnace. The headquarters of the company were at Marquette and the furnace has now been active for about two years.

NATHANIEL HAVEN, until recently president of the Baltimore Bridge Company, died in the Presbyterian Hospital, New York, January 15, aged 44 years. He was at one time connected with the American Bridge Company and previously with the Union Bridge Company. He was a member of the Engineers' Club, New York.

HENRY W. ALEXANDER, member of the firm of Alexander Bros., manufacturers of leather belting, Philadelphia, died January 14, aged 65 years. He had been engaged in manufacturing in Philadelphia for 40 years, prior to which he was a resident of Winchester, N. H. He leaves a widow and four children.

JOSHUA STEVENS, inventor of the Stevens rifle, died at Meriden, Conn., January 21, aged 92 years. He was born in Chester, Mass.

GEORGE POOLE, head of the Poole Silver Company, Taunton, Mass., manufacturer of silver ware, died January 17, aged 50 years. He was for a long time employed by the Reed & Barton Company, and 12 years ago founded the business, with Edward Roach and Louis Busire, which is now known as the Poole Silver Company.

SELDEN LORD McDOWELL, who had in recent years become well known in the machinery trade, died November 13, 1906, at his home in Mt. Vernon, N. Y. He was born at Keokuk, Iowa, August 3, 1864. He came to New York in 1895, entering the employ of the De La Vergne Machine Company as purchasing agent. In June, 1904, he became a special agent of the Corwin Mfg. Company, Peabody, Mass., and in the summer of 1906 he organized the McDowell Sales Company, New York, representing a number of well known manufacturers as well as the Corwin Mfg. Company. He was a nephew of General McDowell of the Union Army.

HOWARD ROWLAND, vice-president of the Ames Shovel & Tool Company, is dead in the 63d year of his age. Mr. Rowland was also for many years the manager of the plant of T. Rowland's Sons, Cheltenham, Philadelphia, Pa., a branch of the Ames Shovel & Tool Company. Mr. Rowland is survived by a widow and three married daughters.

EDWARD HALE SEARS, president of the Collins Company, Collinsville, Conn., manufacturer of edge tools, died January 20, aged 61 years. He was a native of Williamsburg, Mass., and entered the employ of the Collins Company as bookkeeper in 1864 and became its president in 1886. He had never held public office, preferring to give his entire time and energy to the conduct of his business.

More than 3000 steel ties have been installed on the main line of the Pennsylvania Railroad between Pittsburgh and Altoona, the experiment being made on a stretch of track that is very heavy. While cultivating trees to make a steady supply of timber, the company has decided to make thorough tests to discover, with scientific accuracy, how well metal ties are adapted for practical use.

## Recent Experience with the Kjellin Induction Furnace.

In a recent lecture before the Sheffield Society of Engineers and Metallurgists, Sheffield, England, J. Harden, representing the Gröndal-Kjellin Company, gave some facts concerning the latest work with the induction furnace. He said that the electrical furnace is nothing but a common transformer, where the charge of metal forms the secondary winding of one single turn. In the actual furnace the metal charge is placed in an annular hearth round the primary. The current in the molten bath of a 100-kw. furnace will be roughly 30,000 amperes. The heat is thus actually produced in the charge itself, without electrodes or auxiliary heat; and the principal feature of the furnace is that it permits the charge to be heated to any desired temperature without allowing it to come in contact with injurious products of combustion, with carbon, sulphur or other gases. A further advantage is that the heat is transmitted direct to the charge without interposing any radiating surface. In other words, the furnace is simply a melting machine of great efficiency. In furnaces where the coil is placed otherwise than as in Kjellin's arrangement, a low frequency, such as 10 or 12 periods per second, is required, unless special very expensive and complicated devices are employed. It is not commercially possible to make high class steel from inferior material, notwithstanding assertions to the contrary; besides, the difference in the price between superior and ordinary raw material is little compared with the price of the final product. The induction furnace permits of larger casts, a cheaper and cleaner form of melting and reduced cost of labor. By the electrical process it is as easy to make a 2-ton charge as a 60-lb. charge in a crucible.

Most steel makers agree that the cost of melting 1 ton of crucible steel is between £7 and £8. Theoretically 1 ton of steel would require 489 electrical units for melting and superheating, including "killing." Official reports from the works at Gysinge, Sweden, show that the furnace will give about 50 per cent. total efficiency, or under favorable conditions up to 55 or 58 per cent. Thus 1 ton of steel will require about 800 to 850 units. If the cost per unit is based on the most favorable terms made by the Sheffield Corporation—i. e., 0.6d.—the cost of power for melting would be from £2 to £2 2s. 6d. per ton. Two men and one boy will be able to run a furnace turning out 4 tons in 24 hr., so that the cost for labor should not exceed 7s. 6d. per ton, consequently the actual cost for melting 1 ton of steel should be well under £3 per ton, but if the cost were to be as high as 50 per cent. of the cost of melting in crucibles the induction furnace has a great claim for consideration by steel melters. The Gysinge furnace (175 kw.) has been in operation five years, and two are being constructed at Guldsmeshyttan, Sweden, while installations are also being made in Switzerland, Spain and England.

In answer to questions the lecturer said that about one-third by weight of each charge must be left in the furnace so as not to break the ring. In originally starting the furnace it is customary to pour in some molten scrap. The higher the resistance of the charge the better the furnace will work. Brass has been very successfully dealt with in the Kjellin furnace, and no doubt nickel could be treated very economically. There is no difficulty in melting even copper. Manganese steel has been dealt with without trouble caused by its nonpermeability (to magnetism). Accidental failures of the current, if not prolonged beyond 3 or 4 hr., will not spoil a charge in the making. Prof. A. McWilliam of the University of Sheffield, commenting on the statement that high grade steel can be made in the electric furnace, but not at present commercially, said that what interests Sheffield is whether the high tempered steels made by this process are equal or superior to or worse than the ordinary best quality Sheffield crucible steel. A committee of Sheffield experts has been appointed to compare the steels made by the Kjellin furnace with those made by standard processes.

## NEWS OF THE WORKS.

## Iron and Steel.

Stockholders of the United Steel Company, Canton, Ohio, at their annual meeting last week voted to increase the capital stock from \$500,000 to \$750,000. The increase is for general expansion of business. During the past year the company, it is stated, spent \$150,000 in improvements.

The Shelby Steel Tube Company, Shelby, Ohio, has just installed a 250-hp. boiler addition, and is putting in eight new benches for the drawing of tubing.

The Norwalk Iron & Steel Company, Norwalk, Ohio, will shortly have the new crucible steel equipment ready for operation and will then be able to materially reduce the cost of the product from that of previous years, and at the same time guarantee a higher grade of steel for machine tool and other purposes. The company recently increased its capital stock to \$1,000,000. The incorporators are A. M. Beattie, James G. Gibbs, Carl T. Torsell, J. H. Beattie and Jos. R. McKnight. Mr. Torsell is general superintendent.

Plans are being prepared by the Western Tin Plate & Sheet Company, Greencastle, Ind., for extensive improvements to its plant, which will include a scrap furnace and bar mill and galvanizing plant. Between \$50,000 and \$60,000 will be expended in the extensions contemplated, and work on these new departments will be under way within a few weeks.

D. Lamond & Son, engineers and contractors, Ferguson Building, Pittsburgh, have received a contract from the Hanging Rock Iron Company, Hanging Rock, Ohio, for two C. H. Foote improved hot blast stoves, 18 x 85 ft. A similar stove has been in operation at this plant for several years.

No. 3 Furnace of the Pennsylvania Steel Company at Steelton, Pa., is being extensively repaired.

The Reading Iron Company has started 10 furnaces in its addition to the Oley street mills at Reading, Pa. The remaining furnaces will soon start.

The Colorado Fuel & Iron Company, Denver, Col., has completed many of the improvements to its plant at Pueblo, which were started some time ago, and it hopes to have blast furnace F completed about April 1. The company has completed the addition to its soaking pit capacity at the rail mill, the machine shop for the Colorado & Wyoming Railroad, the 43-mile canal for bringing water to the works from the Arkansas River, and the first of the six additional 50-ton basic open hearth furnaces. The construction of the additional open hearth furnaces will be commenced in the near future. During the year the company made improvements to the wire and rod mills, spike factory, bolt works, mine rail department, &c.

The Wright Wire Company, Worcester and Palmer, Mass., is to erect a brick addition to its wire drawing mill at Palmer, to be 160 ft. long and two stories, and also an addition to its annealing and cleaning department, 80 ft. square. The business is growing very rapidly, necessitating important enlargements in spite of large additions made within a few months.

The Halcomb Steel Company, Syracuse, N. Y., has increased its capital stock \$300,000, bringing the capitalization up to \$1,500,000. The increase of capital was made necessary by the large expansion of its business, and although the capacity of the plant has been increased 25 per cent. and about \$300,000 has been spent in improvements during the past three months, it is probable that additional buildings will be erected later.

The Breaker Island steel plant, Troy, N. Y., is being dismantled under the direction of the United States Steel Corporation. The machinery is to be removed by Long & Simpson, contractors, and will be shipped to Newburg, Pa., South Chicago and Milwaukee.

The 35-in. mill at the Homestead Steel Works of the Carnegie Steel Company has been closed down while two sets of reversing engines are being installed. The foundation of each engine weighs 106 tons and each engine is 5000 hp. The installation of these engines will greatly increase the capacity of the 35-in. mill for rolling beams and will permit three beams to be rolled at the same time. A large new engine will also be placed in the 72-in. mill in this plant.

The new Josephine Furnace of Corrigan, McKinney & Co., located at Josephine, Indiana County, Pa., has been started and will run on foundry and forge iron. The new furnace has a capacity of 350 to 400 tons a day, and is located on the Pennsylvania and Buffalo, Rochester & Pittsburgh railroads, with stations and sidings from each. The company is now opening up its coal lands in this immediate vicinity, and within a short time will begin the erection of a large number of coke ovens.

## General Machinery.

The Greenwich Bleachery, East Greenwich, Conn., is to erect a new machine shop, 50 x 100 ft., which will replace the old shop. The company states that it will require no new machinery.

The J. L. Robertson Machine Company, Paris, Ill., has been incorporated, with a capital stock of \$5000, for the manufacture of light machine work and repairs. A site has been purchased

on which a brick building will be erected, and a foundry plant will be installed at an early date.

The Cleveland Tool Company, Cleveland, Okla., is preparing to move its forging and machine shop from that place to Tulsa, I. T., where it will have a more commodious and better equipped plant for the conduct of its business. It expects to be ready for business in the new location about February 1.

The Warren Machine Company, Warren, Ind., manufacturer of drilling and special well tools, has moved its branch shop, heretofore located at Van Buren, Ind., to Robinson, Ill.

A new firm recently organized under the name of Charles A. Kille & Co., Columbus, Ohio, will establish a machinery selling agency, and will handle a line of high class steam boilers and engines, together with general shop equipment and supplies.

The New York Blower Company, Bucyrus, Ohio, denies the report that it intended to move its plant to some point in Indiana, but desires to build where now located, and it is understood that for that purpose a large quantity of structural steel has been purchased and delivered, which will be prepared for erection during the winter months and put up early in the spring.

The Bay State Saw & Machine Company, 67 Batterymarch street, Boston, Mass., has incorporated with a capital stock of \$25,000, to manufacture band saws, hand saw setters and band saw filers, and to deal in circular and hack saws, gas engines, machinery and mill supplies. Frank H. Hall is president, Elias W. Adams treasurer, and John W. Taylor clerk.

The Morgan Construction Company, Worcester, Mass., manufacturer of rolling mill machinery and furnaces, has taken the shops on Union street, Worcester, formerly occupied by the H. C. Fish Machine Company, manufacturer of machine tools, and will occupy the 7000 sq. ft. of new floor space for manufacturing purposes, principally for erecting.

The Bucyrus Company, South Milwaukee, Wis., manufacturer of steam shovels and dredging machinery, has been awarded the contract for a dredging outfit to be used in deepening the Jhelum River, in Kashmir, one of the native States of India. A special representative of the Maharajah of Kashmir visited the United States last summer to secure plans and estimates for the necessary dredging outfits, and the contract just awarded is the result of that visit. Delivery is not called for until two years.

The Nordberg Mfg. Company, Milwaukee, Wis., manufacturer of steam, power and mining machinery, has awarded contracts for the erection of a new foundry which will cost more than \$350,000. The contract for the building has been awarded to the Jas. A. Stewart Construction Company, and calls for the completion of the building before October 1. The building will be 240 x 425 ft. in dimensions, with three cupolas for the melting of iron. It will be of brick and steel construction and is to be located north of the present plant at Oklahoma and Chicago avenues.

## Power Plant Equipment.

The Republic Engineering & Mfg. Company, Machesney Building, Pittsburgh, works in Allegheny, Pa., has just completed its second building on Boquet street, Allegheny. The brass foundry and shaft coupling department is being equipped with special machinery for the manufacture of the Diescher patent coupling.

The Senter Mfg. Company, Chattanooga, Tenn., has completed the erection of a new plant and is now manufacturing automatic boiler feeders, low water alarms and pump governors.

Because of the increased traffic of the Camden-Atlantic City electric line of the Pennsylvania Railroad it has become necessary to add to the present rolling stock some 21 cars. Each will be driven by a 200-hp. double motor equipment and will be fitted with the Sprague-General Electric type M control. At the Westville power house a fourth 2000-kw. Curtis steam turbo-generator will be installed, with additional boiler capacity, necessary condenser and feed pumps, &c. Six 1000-kw. rotary converters will be distributed in the substations—one each at South Camden, Glassboro, Newfield, Mizpah, Atlantic City and one at the Westville power house. The Pennsylvania Railroad has ordered all this additional apparatus from the General Electric Company, Schenectady, N. Y., which furnished and installed the initial equipment.

The Neer Auto Engine Company, Plain City, Ohio, is making extensive additions to its present shop equipment in the way of machinery and tools and is also preparing new designs and patterns for its specialty, the Neer six-cylinder engine.

The Southwark Foundry & Machine Company, Philadelphia, has recently received contracts from the National Tube Company for installation at its works at Lorain, Ohio, for a 44 x 84 and 60 x 84 in. horizontal disconnected compound condensing blowing engine; National Works, at McKeesport, Pa., for three 42 x 84 and 60 x 84 in. vertical, steeple, quarter crank compound blowing engines. The company has received a contract from the Cambria Steel Company, Johnstown, Pa., for a 4000-hp. blast furnace gas blowing engine, and contract for a No. 8 Weiss condenser to handle 1500 hp. for installation in the plant of the Pittsburgh Plate Glass Company at Creighton, Pa.

## Foundries.

The Birdsboro Steel Foundry & Machine Company, Birdsboro, Pa., intends to build another addition to its plant, orders for the



equipment, including one 300-hp. Harrisburg engine, two 250-hp. boilers, and one 300-kw. Westinghouse generator, having been placed. The present power house has two smokestacks, and it is possible that one of these will be removed and mechanical draft employed for the 800-hp. boiler capacity, as it is thought better results in economy can be obtained. Recent shipments include 10 complete air and gas valves for 50-ton furnace for the Bethlehem Steel Company; one 18-in. and 24-in. accumulator, the Shoen Steel Wheel Company; one 40-in. Wagner cold saw for the Pacific Coast, and one the same size for the Watertown Arsenal; one 26-in. saw, the Inland Steel Company. In addition the company has booked a number of orders ranging in capacity from 14 to 40 in., and is completing a large order for cast steel car bodies for the Cambria Steel Company and 30 steel body ingot cars for the New York State Steel Company. Several orders for hydraulic machinery for companies in the South have been received.

The Union Iron & Brass Works, El Paso, Texas, recently incorporated with a capital stock of \$50,000, now operates a fair sized machine shop, blacksmith shop and brass foundry, but has bought considerable ground upon which is a good sized brick building which it is altering in contemplation of a larger and more extensive business. The company will carry a small stock of supplies and manufacture brass goods in addition to operating its iron foundries and sheet iron shop. H. W. Galbraith is president, W. J. Harris vice-president, J. G. House secretary and general manager, and A. Courchesne treasurer.

The Wayne Iron Works, Wayne, Pa., has commenced the erection of a brick addition to its plant 60 x 100 ft., which will enable the company to double its capacity. This is the third enlargement of the plant in four years.

L. F. Fales, Walpole, Mass., manufacturer of machinery, has leased the foundry formerly conducted by the Clark Machine & Foundry Company, Franklin, Mass., and has begun its operation under the management of David Spence, recently superintendent of the foundry of the Golding Machine Company. General work will be done, as well as the manufacture of castings for use in Mr. Fales' works.

The Wendt Coupler Company, Marshfield, Wis., has been incorporated with a capital stock of \$50,000 for the manufacture of railroad car equipments. A specialty will be made of a patented coupler, of which Fred H. Wendt is the inventor. A new steel foundry will be erected at once, work upon which will be commenced at an early date.

The Avon Street Foundry, Rockford, Ill., has been reopened by the firm of Foster & Griffith, recently organized for the manufacture of molding machines, of which Mr. Griffith is the patentee. The new plant will have a capacity of 15 to 18 tons per day and will, in addition to the manufacture of molding machines, do regular jobbing foundry work.

Plans are being prepared for an extension to the foundry of the Geo. H. Smith Steel Casting Company, Milwaukee, Wis., to consist of a building 60 x 240 ft., of steel construction. Two 10-ton electric traveling cranes will also be installed, making a total of eight traveling cranes in use and a floor space of about 100,000 sq. ft.

The Millais Engineering & Foundry Company, Sharon, Pa., recently incorporated, has completed the building of a foundry for the manufacture of brass and bronze castings. The company has already received some orders and is figuring on considerable work. F. Millhouse is president; J. Sinclair, secretary and treasurer, and E. W. Allen, manager.

The Terre Haute Malleable Iron & Mfg. Company, Terre Haute, Ind., has its new plant in operation. The output will be doubled at an early date by the duplication of the present equipment on the land adjoining, which had been purchased, at which times 200 hands will be employed. Aside from the malleable iron product, the company at present is devoting its entire energies to the production of its specialty, the safety tackle block wire stretcher. A. W. Wagner is president; H. J. Wanner, secretary and general manager, formerly of the Peerless Range Works, Chicago, and L. M. Eyke, general superintendent.

The Patrie Furnace Company, Springfield, Ohio, will erect another foundry adjoining the one at its present plant. The building will be of concrete steel and glass and will be about 68 x 110 ft.

T. C. Nute and O. M. Sherbert, who have been running a foundry in Akron, Ohio, under the name of the T. C. Nute Company, have organized a company, capitalized at \$30,000 and known as the Nute Foundry Company. The company will begin at once the erection of a new foundry in Cuyahoga Falls, Ohio, with a much larger capacity than the old one. The main building will be 50 x 100 ft.

The East Rochester Iron Works has been incorporated at East Rochester, N. Y., with a capital of \$10,000, by G. W. Speed, J. D. Boates and E. B. Williams, Rochester.

W. J. Oliver of Knoxville, Tenn., who in conjunction with Anson Bangs of New York made the lowest bid on the Panama Canal contract, has just finished probably the best equipped foundry in east Tennessee in connection with his machine shops at Knoxville. The cupolas will have a capacity of about 50 tons each day. It will be possible to turn out 700 car wheels.

It will require only a few days to get the foundry ready for operation.

The Bonney-Floyd Company, Columbus, Ohio, has secured a site of 11½ acres on the Toledo & Ohio Central Railroad, where it will erect a new steel casting plant, contracts for the buildings of which will be placed within a short time. This company was incorporated last December as the Central Steel Casting Company, but the name has been changed to the Bonney-Floyd Company.

#### Bridges and Buildings.

The Meredith Construction Company, Terre Haute, Ind., recently incorporated with a capital of \$20,000, will engage in the business of general construction, including concrete masonry, steel bridges, street paving, grading, &c.

Davidhelser & Wiend have begun erection of two new buildings at Pottstown, Pa., for L. F. Shoemaker & Co., Schuylkill Bridge Works.

#### Fires.

The explosion of a generator caused \$10,000 damage to the plant of the Waltham Gas & Electric Company, Waltham, Mass., on January 18.

The breaker and washery at the coal mines of the Erie Railroad at Avoca, near Scranton, Pa., were destroyed by fire January 19. The loss is estimated at \$100,000.

The shops of the Pullman Car Company at Wilmington, Del., were damaged \$50,000 by fire on January 19.

On January 17 the foundry of the McMyler Mfg. Company, Cleveland, Ohio, was damaged \$10,000 by fire.

A recent fire did \$7000 damage to the machine shops of the United Railroads, San Francisco, Cal.

The plant of the South Atlantic Car & Mfg. Company, Savannah, Ga., was badly damaged by fire January 17.

The metal plant of the Thayer Mfg. Company at Williamsburg, Mass., was damaged \$10,000 by fire January 15.

#### Hardware.

The Wire Specialty Company, Chicago, Ill., has been incorporated with a capital stock of \$15,000. Emmons Collins is the president and general manager and K. P. Boulton, treasurer, of the company. These parties, with J. Floyd Clench, R. J. Street and J. R. Morgan, comprise the Board of Directors. The business consists principally of the manufacture of special wire parts for other manufacturers. The company aims to extend its activities in manufacturing, by automatic machinery, wire and sheet metal products, which have heretofore been made by hand fed machines, and will be pleased to hear from manufacturers of new machinery for producing this class of goods. The plant is now located in the new building, 43-47 Fulton street, immediately opposite the north end of the new Northwestern station, and is equipped with the most approved machinery. Machinery is operated by automatic motors with a duplicate set of motors standing idle in case of breakdown, and the power is supplied by a steam engine on the premises, there being also connection with the Chicago Edison Company, enabling the plant to run at all hours independently of its own power plant.

The O. K. Fastener Company, Syracuse, N. Y., has been incorporated to manufacture metal articles. The capital is \$125,000 and the incorporators are E. Laass, J. Laass and B. B. Aylesworth, all of Syracuse.

Jonas S. Moyer, Hatfield, Pa., manufacturer of ornamental lawn, yard and field fencing, announces that his factory has been running on full time all winter and that it has been found necessary to increase the facilities of his foundry in order to meet the requirements in the line of castings.

Atlas Mfg. Company, New Haven, Conn., manufacturer of Bradley steel shelf brackets, has recently capitalized its surplus, which with new investment brings its present capitalization from \$5000 to \$70,000. The company is planning to add several new sizes to its output of wire shelf brackets and will also add a full line of wire coat and hat hooks, ceiling hooks, tin spoons, &c.

National Cutlery Company, Philadelphia, Pa., has recently purchased property adjoining its present factory on which it will erect a 60 x 90 ft. building. The addition is needed to meet the requirements of the company's expanding business.

The Ohio Shovel & Stamping Company, Canal Dover, Ohio, was partially reorganized at the annual meeting of the stockholders held last week, outside interests in the company having been purchased by local parties. New officers were chosen, as follows: O. C. Eben, president and general manager; D. Defenbacher, vice-president and assistant manager; J. F. Defenbacher, secretary and treasurer. The above officers and Dr. A. W. Davis and Victor Wentz constitute the Board of Directors.

The Ideal Fence Tool Company, Abingdon, Ill., recently incorporated, will manufacture wire fence gates and a line of special fence tools, including the Ideal anchoring device, the Ideal rotary reversible straining device and the Ideal Never Slip clamping device.

The Connecticut Metal Stamping Company, New Haven, Conn., has established a factory at Bradley and Williams streets

for the manufacture of electric shade holders, gas globe holders, stamped metal work and specialties. This is a new Connecticut corporation with capital stock of \$15,000.

P. Maglunis, Kimball, Neb., manufacturer of extensible irrigation flumes and water troughs, is establishing a branch factory at Worland, Wyo.

The F. A. Whitney Carriage Company, Leominster, Mass., manufacturer of baby carriages, is to erect a new factory building, 45 x 285 ft. and four stories. It is probable that no addition to the power plant will be necessary.

The American Axe & Tool Company has awarded the contract for the building at East Douglas, Mass., which will replace the works recently destroyed by fire. It will be 114½ x 126 ft., and one story, and will be occupied by the grinding, tempering and polishing departments. A new boiler house will be 36 x 49 ft., and the forge shop at the lower village, so-called, will be extended 30 ft.

J. S. Dunlap, 39-45 W. Randolph street, Chicago, inventor and manufacturer of coffee pots and other hardware specialties, is enlarging his plant to accommodate an expanding business.

#### Miscellaneous.

The new plant of the Michigan Copper & Brass Company, Detroit, Mich., which has been equipped for the manufacture of brass, copper and German silver in forms of sheets, rolls, plates, wire, rods, tubing, blanks and shells, will be placed in operation about May 1. The main building will be 180 x 557 ft., of brick and steel construction, with a saw tooth roof, and will contain the casting department, furnaces and rolling mills. It is the ultimate intention to locate the casting department outside of the main building, and this will be included in later extensions. Being located on the Detroit River, raw material will be landed at the company's dock, and a side track from the Michigan Central will provide excellent railroad transportation facilities. Equipment orders recently awarded include one 1000-hp. engine to the Allis-Chalmers Company, Milwaukee; three 250-hp. water tube boilers to Wickes Bros., Saginaw, Mich., and five Rockwell annealing furnaces to the Rockwell Engineering Company, New York.

The Taunton Spindle Company, Taunton, Mass., has been organized with a capital stock of \$10,000, and will manufacture shuttles, spindles and a general line of mill supplies. Alfred L. Lincoln is the president; Percival C. Lincoln, treasurer, and they with Walter J. Henry make up the Board of Directors.

The Thomson Electric Welding Company, Lynn, Mass., manufacturer of apparatus for electric welding, tempering, annealing, brazing, &c., is erecting an addition to its works 50 x 75 ft. and two stories. The lower floor will be used for the job welding department and the upper floor for offices, drafting room and storage.

The Connecticut Auto Engineering Corporation, Meriden, Conn., has been incorporated to manufacture automobile specialties and ignition apparatus. The incorporators are E. C. Wilcox, L. E. Wilcox, B. C. Rogers, B. L. Lawton, Charles Cuno, J. H. White and Wilbur F. Rogers.

The E. R. Knott Machine Company, Boston, Mass., has been incorporated with a capital stock of \$5000 to manufacture a machine that puts wrappers on confectionery. Frank L. D. Rust is the president, E. R. Knott treasurer and general manager, and Charles F. Randall clerk. Arrangements for the purchase of machinery have already been made.

The Gobeille Pattern Company, one of the oldest concerns of the kind in Cleveland, having been in business there for over 25 years, has sold its plant to the Cleveland Castings Pattern Company, organized recently. F. W. Wood is president, A. K. Spencer vice-president, D. G. Miller secretary and treasurer, and V. G. Farner superintendent. The new company starts out with all the business it can attend to and will double the present capacity of its plant. It has secured some large contracts for making engine patterns for the Nagle Engine & Boiler Company, Erie, Pa., and is doing considerable work for the American Locomotive Company.

The Republic Belting & Supply Company, Cleveland, Ohio, reports that its orders for belting are heavier than ever before. The fact that so many factories are working overtime and keeping their belting in almost constant use and do not give it the usual care is pointed to in explanation of the heavy demand. This company has quadrupled its business in two years and expects to double it again in February. The company is making extensive additions to its plant in the way of leather currying machinery.

The Empire Shipbuilding Company, Buffalo, N. Y., will construct a steel floating dry dock 600 ft. long and 90 ft. wide, in four sections, for use in connection with its shipbuilding plant. It will be of sufficient size to accommodate the largest vessels in service on the Great Lakes.

The Linde Air Products Company, Buffalo, N. Y., which is to manufacture oxygen by a new process, has let contracts for a large factory building at Chandler street and the New York Central Belt Line.

The Barcalo Mfg. Company, Buffalo, N. Y., maker of brass and iron bedsteads, is adding to its plant a foundry building 95 x 185 ft., and will build a three-story addition to the main factory building in the spring.

The Bay City Boat Mfg. Company has been organized at Bay City, Mich., with a capital of \$60,000, and will engage in the manufacture of pleasure boats and tugs of all kinds. L. J. Weatherwax, formerly employed as a designer for the Brooks Company, has been elected vice-president and general manager, and C. L. Fox secretary. Several vacant mill buildings will be occupied until spring, when a new plant will be built.

The Louisiana Export Box & Lumber Company, New Orleans, La., will erect a plant, 100 x 200 ft., two stories high, which will be equipped with modern machinery for making box shooks.

The Transit Thresher Company, Minneapolis, Minn., has located a temporary plant at 230 Fifth avenue, South, where it manufactures a four-cylinder gasoline engine, direct connected to separator, for threshing, the invention of D. M. Hartsough. The engine can be disconnected for plowing or other traction work. It is the intention to build a new plant in the spring.

The Barnes Safe & Lock Company, Pittsburgh, is negotiating with the Board of Trade of Washington, Pa., for the removal of its plant to the latter place. If the Board of Trade will give a bonus and a site the company will erect at Washington two buildings, 60 x 300 ft., to be connected to another building, 80 x 200 ft., all one story and of fireproof construction. The buildings will have concrete floors with wooden floors over the concrete.

The H. Adler Company, Carnegie, Pa., manufacturer of gas stoves, ranges, &c., is about to build additions to its plant, to include a stove mounting room 50 x 200 ft., and pressroom 50 x 175 ft., the buildings to be of brick and concrete.

The Vacuum Burner Company has been incorporated at Buffalo, N. Y., with a capital stock of \$10,000, and will manufacture a recently patented vacuum burner for use under boilers, furnaces, &c. The directors are Benton H. Wilson, Eugene C. Waldorf and Greenleaf Van Gorter, Buffalo.

The Spencer Kellogg Company, Buffalo, N. Y., which is to build a linseed oil and oil cake mill at Minneapolis, at a cost of \$250,000 or more, has contracted with the Buckeye Iron & Brass Company, Dayton, Ohio, to furnish the mechanical equipment for the new plant. The company is building a linseed oil plant at Edgewater, N. J.

The Ideal Runabout Mfg. Company has been incorporated at Buffalo, N. Y., with a capital of \$10,000, to manufacture air-cooled motor automobiles. Factory space has been leased and the company will commence manufacturing at once. A. C. Whittemore is president and G. P. Askin shop superintendent.

The Holland Launch & Engine Company, Holland, Mich., recently incorporated, has been organized by the election of the following officers: J. Lokker, president; H. Garvelink, vice-president; I. Garvelink, secretary; Dr. H. Bos, treasurer. The Valley City Launch & Engine Company, Grand Rapids, Mich., and the Wolverine Motor Works, Holland, Mich., are merged into the new company, which will continue the manufacture of a high grade line of launches and boat equipment formerly conducted by the latter organizations.

The Oriskany Hydro Electric Company, Utica, N. Y., has been incorporated with a capital stock of \$500,000 by Edwin H. Risley, City National Bank Building; G. W. Sanborn, and M. W. Terry.

The Bessemer Coke Company, Lewis Building, Pittsburgh, Pa., has recently built at Millsboro, Washington County, Pa., 100 new coke ovens, and work on 250 more will be started at an early date. It will, however, be unable to ship coke from this new works until railroad connections are completed. Meanwhile the company's trade is being supplied from its other coking plants.

C. H. Dresser & Son, Hartford, Conn., manufacturers of store and office fixtures, are to erect a new wood working plant, ell shaped, 50 x 108 ft. and 40 x 140 ft. and two stories. The company will probably be in the market for a new boiler, but will not require new machinery at present.

The National Cash Register Company, which is contemplating removing its plant from Dayton, Ohio, has been inspecting a number of sites in the Pittsburgh District. The Manufacturers' Association at McKeesport, Pa., is about to offer it a large tract. The company has not as yet definitely decided to remove from Dayton.

The Climax Mfg. Company, Canton, Ohio, has been incorporated to manufacture the Climax machine for wiring rubber tires and removing the wires from old tires. The incorporators are Thomas L. Hites, Harry Paar, L. Frank Snyder, Edward W. Snyder and Henry Sahm. The capital stock is \$20,000.

The Antman-Taylor Company, Mansfield, Ohio, has just completed what is said to be the largest traction engine ever built. The engine has not yet been tested, but it is believed that it will reach 150 hp. The engine is equipped with a number of novel devices designed by the company, among them a mechanical steering device and a new type of valve gear. The engine was built for ranch use in the West and weighs 40,000 lb.

The Southwestern Bridge Company, Joplin, Mo., has been awarded the contract for a 100,000-gal. tank and tower to be erected at the plant of the Dewey Portland Cement Company, Dewey, I. T. Contract was awarded by Tyler & Co., who are constructing the plant.



## The Iron and Metal Trades

There is distinct evidence, notably in the New York market, of an eagerness on the part of some sellers of Pig Iron to secure business for spot and for early delivery, and the market is weaker, with lower prices accepted for what little business there is. Unless weather conditions prove adverse there is the prospect that the famine is over. It appears, too, as though shipments from the Birmingham District are improving, at least to tidewater markets. To points north of the Ohio the floods have checked the movement.

Considerable foreign Iron is still coming forward, but so far as we can learn there has been no buying of round lots abroad for some time, and it looks as though the end of the import movement is pretty well in sight.

Buying for delivery during the second half has continued on quite a good scale, particularly in the territory west of the Allegheny Mountains, but a feeling of conservatism is spreading among founders and steel makers who are now partly covered and are inclined to await developments before committing themselves further.

Pittsburgh reports a sale of 16,000 tons of Bessemer Iron, deliveries running over the first half of the year, at \$22 at furnace. This Iron had been offered to several other consumers at somewhat higher prices. In the same district some good sales of Malleable Bessemer and Basic were made at \$22 at furnace, for second quarter delivery.

The market for Ferromanganese has been rather irregular lately, and sales for forward shipment have been at close to \$70 delivered, Pittsburgh.

Matters are moving along in a very satisfactory manner in all branches of the Finished trades. Specifications are coming in freely, and new orders are being booked in good volume.

Sales of Steel Rails aggregated about 75,000 tons during the week, this including 49,000 tons to two roads and 6000 tons for the Cœur d'Alene & Spokane. A contract for 28,000 tons is pending.

The outlook for Structural Material is promising, and it is believed that New York, for instance, will this year duplicate the large tonnage which was required last year. Among the contracts placed are three bridges for the St. Paul road, calling for 6000 tons, some further work for the Great Northern and some for the Lehigh Valley.

In order to compensate for the high price of Spelter the price of Galvanized Sheets will be advanced 10 cents per 100 lb. by the leading interest. On Blue Annealed Sheets there will be an advance of 5 cents per 100 lb., prices hitherto having been out of harmony with other departments of the Sheet trade.

A heavy tonnage in large sized Pipe is coming up for gas and oil lines, in which there is a good deal of activity.

A significant report is that a fair sized business has been done in Tin Plate for delivery during the third quarter, a premium of 10 cents per box being paid.

## A Comparison of Prices.

Advances Over the Previous Month in Heavy Type, Declines in Italics.

At date, one week, one month and one year previous.

Jan. 23, Jan. 16, Dec. 26, Jan. 24, 1907. 1907. 1906. 1906.

PIG IRON, Per Gross Ton:				
Foundry No. 2, Standard, Philadelphia .....	\$26.50	\$26.50	\$25.00	\$18.50
Foundry No. 2, Southern, Cincinnati .....	26.00	26.00	26.00	16.75
Foundry No. 2, Local, Chicago ..	25.50	25.50	25.50	19.25
Bessemer, Pittsburgh .....	22.85	22.85	23.35	18.35
Gray Forge, Pittsburgh .....	22.25	22.35	22.85	17.35
Lake Superior Charcoal, Chicago	27.00	27.00	26.00	20.50

BILLETS, &c., Per Gross Ton:				
Bessemer Billets, Pittsburgh ..	29.50	29.50	29.50	27.00
Forging Billets, Pittsburgh .....	36.50	36.50	36.50	32.00
Open Hearth Billets, Phila .....	33.00	33.00	34.00	29.60
Wire Rods, Pittsburgh .....	37.00	37.00	37.00	34.00
Steel Rails, Heavy, Eastern Mill	28.00	28.00	28.00	28.00

OLD MATERIAL, Per Gross Ton:				
Steel Rails, Melting, Chicago ..	18.00	18.00	18.50	18.50
Steel Rails, Melting, Phila .....	19.00	19.00	20.00	17.75
Iron Rails, Chicago .....	27.00	27.00	28.00	23.00
Iron Rails, Philadelphia .....	27.50	27.50	27.75	24.50
Car Wheels, Chicago .....	25.00	25.00	25.25	19.00
Car Wheels, Philadelphia .....	23.00	23.00	23.00	18.75
Heavy Steel Scrap, Pittsburgh ..	18.50	18.75	20.00	17.00
Heavy Steel Scrap, Chicago .....	17.00	17.00	17.00	15.00
Heavy Steel Scrap, Philadelphia	18.00	18.75	19.50	17.00

FINISHED IRON AND STEEL,				
Per Pound:				
Refined Iron Bars, Philadelphia.	1.93½	1.93½	1.83½	1.83½
Common Iron Bars, Chicago ..	1.81½	1.81½	1.81½	1.80
Common Iron Bars, Pittsburgh.	1.80	1.80	1.80	1.85
Steel Bars, Tidewater, New York	1.74½	1.74½	1.74½	1.64½
Steel Bars, Pittsburgh .....	1.60	1.60	1.60	1.50
Tank Plates, Tidewater, New York	1.84½	1.84½	1.84½	1.74½
Tank Plates, Pittsburgh .....	1.70	1.70	1.70	1.60
Beams, Tidewater, New York ..	1.84½	1.84½	1.84½	1.84½
Beams, Pittsburgh .....	1.70	1.70	1.70	1.70
Angles, Tidewater, New York ..	1.84½	1.84½	1.84½	1.84½
Angles, Pittsburgh .....	1.70	1.70	1.70	1.70
Skelp, Grooved Steel, Pittsburgh	1.65	1.65	1.65	1.57½
Skelp, Sheared Steel, Pittsburgh	1.70	1.70	1.70	1.60

SHEETS, NAILS AND WIRE,				
Per Pound:				
Sheets, No. 27, Pittsburgh .....	2.50	2.50	2.50	2.30
Wire Nails, Pittsburgh .....	2.00	2.00	2.00	1.85
Cut Nails, Pittsburgh .....	2.05	2.05	2.05	1.75
Barb Wire, Galv., Pittsburgh ..	2.45	2.45	2.45	2.30

METALS, Per Pound:				
Lake Copper, New York .....	24.75	24.75	23.50	18.12½
Spelter, New York .....	7.00	6.90	6.67½	6.40
Spelter, St. Louis .....	6.75	6.75	6.55	6.35
Lead, New York .....	6.30	6.30	6.30	5.75
Lead, St. Louis .....	6.12½	6.12½	6.05	5.45
Tin, New York .....	42.00	41.30	42.80	36.50
Antimony, Hallett, New York ..	24.50	24.50	25.00	14.25
Nickel, New York .....	45.00	45.00	45.00	40.00
Tin Plate, 100 lb., New York ..	\$4.09	\$4.09	\$4.09	\$3.69

## Chicago.

FISHER BUILDING, January 23, 1907.—(By Telegraph.)

Strength and activity continue to be dominant features of the market, and an unhalting demand is reported in practically all lines, both of finished and unfinished products. While as against last week's unusually large tonnage purchases of Pig Iron, there are none of like significance to record, yet inquiries and orders for smaller requirements are plentiful, and on the whole constitute a satisfactory volume of business. First half buying is practically closed and most of the furnaces have completed their schedule for that period. Some, indeed, are wholly sold up and are not in position to quote on anything nearer than the second half. No. 2 Southern is being pretty generally held at \$19, Birmingham, for the last quarter, and judging from significant market tests that have been made on desirable tonnage offerings this price is well maintained. Inadequate shipping facilities continue to retard the movement of stocks, and one Southern furnace interest now has a full month's output piled up in the yard for lack of cars. The easier condition of Structural Material reported two weeks ago has at least not grown more pronounced, and there are signs on the other hand of increased activity, due in part to freer specification by agricultural interests. No price changes of note have developed, but the strong bullish tendency that pervades the market fully sustains former quotations.

**Pig Iron.**—The disposition of furnace interests to withstand the temptation of large tonnage offerings at shaded prices, as evidenced by last week's transactions, remains unchanged. With practically all first half Iron out of the way, attention is now turned toward requirements for the last half. No large sales are reported, but the total tonnage booked in lots of 1000 to 3000 tons is considerable. The

price of \$19, Birmingham, is being firmly held by Southern furnaces for No. 2 for last quarter, and it is doubtful if this price is susceptible of any considerable shading. Quite a strong inquiry has developed for Bessemer, one selling agency reporting an aggregate of 25,000 tons, upon which prices have been asked within a day or two, but no sales have been reported. Southern Gray Forge is now offered at \$17.50, Birmingham, for last half, and Kentucky Silveries for early shipment are somewhat stronger, and quotations are advanced \$1 per ton. Quotations for February and March shipments, f.o.b. Chicago, including the 45c. advance in freight rates on Southern grades, are as follows:

Lake Superior Charcoal.....	\$27.00 to \$27.50
Northern Coke Foundry, No. 1.....	26.00 to 26.50
Northern Coke Foundry, No. 2.....	25.50 to 26.00
Northern Coke Foundry, No. 3.....	25.50 to 26.00
Northern Scotch, No. 1.....	26.00 to 27.00
Ohio Strong Softeners, No. 1.....	26.00 to 26.50
Ohio Strong Softeners, No. 2.....	25.50 to 26.00
Southern Coke, No. 1.....	27.35 to 27.85
Southern Coke, No. 2.....	26.85 to 27.35
Southern Coke, No. 3.....	26.35 to 26.85
Southern Coke, No. 4.....	25.85 to 26.35
Southern Coke, No. 1 Soft.....	27.35 to 27.85
Southern Coke, No. 2 Soft.....	26.85 to 27.35
Southern Gray Forge.....	25.85 to 26.35
Southern Mottled.....	22.85 to 23.35
Malleable Bessemer.....	26.00 to 26.50
Standard Bessemer.....	25.30 to 25.80
Jackson Co. and Kentucky Silvery, 6 %	29.30 to 29.80
Jackson Co. and Kentucky Silvery, 8 %	31.30 to 31.80
Jackson Co. and Kentucky Silvery, 10 %	33.30 to 33.80

**Metals.**—The upward movement in Copper is reflected in stronger prices and scarcity of the metal. Casting Copper is hard to get and in strong demand. Awed by the high prices now being asked, users are not anticipating their needs, but are buying for immediate requirements. We quote as follows: Casting Copper, 26½¢. to 27¢.; Lake, 27¢. to 27½¢., in carlots for prompt shipment; small lots, ¼¢. to ½¢. higher; Pig Tin, car lots, 44½¢.; small lots, 45¢.; Lead, Desilverized, 6.50c. to 6.60c., for 50-ton lots; Corroding, 7.25c. to 7.35c., for 50-ton lots; on car lots, 2¼¢. per 100 lb. higher; Spelter, 6.90c.; Cookson's Antimony, 28½¢., and other grades, 26½¢. to 27½¢.; Sheet Zinc is \$8.40 list, f.o.b. La Salle, in car lots of 600-lb. casks. On Old Metals we quote: Copper Wire, 20½¢.; Heavy Copper, 20¼¢.; Copper Bottoms, 19½¢.; Copper Clips, 20¢.; Red Brass, 19½¢.; Red Brass Borings, 16½¢.; Yellow Brass, 16¢.; Yellow Brass Borings, 14¼¢.; Light Brass, 12½¢.; Lead Pipe, 5.50c.; Tea Lead, 5c.; Zinc, 5c.; Pewter, No. 1, 28c.; Tin Foil, 34c.; Block Tin Pipe, 27½¢.

(By Mail.)

**Billets and Rods.**—There is very little movement in Rods, and prices continue nominal at \$36 to \$37, Pittsburgh, for both Bessemer and Open Hearth. As a result of the general scarcity at all mills no transactions of importance are reported, but on sales of occasional car lots \$41 to \$42, Chicago, is still being asked. Forging Billets of ordinary quality bring \$38, and the price is graded upward according to quality.

**Rails and Track Supplies.**—No change is observed in Rails of Standard Section, nor indeed is any expected in the near future. Light Rails continue in good demand, and sales of some small lots of high Tee Rails are reported. Former quotations are unchanged. Angle Bars, accompanying Rail orders, 1907 delivery, 1.65c.; car lots, 1.90c.; Spikes, 2.25c. to 2.50c., according to delivery; Track Bolts, 2.65c. to 2.75c., base, Square Nuts, and 2.80c. to 2.90c., base, Hexagon Nuts. The store prices on Track Supplies range from 0.15c. to 0.20c. above mill prices. Light Rails, 30 to 45 lb. sections, \$33; 25-lb., \$34; 20-lb., \$33; 16-lb., \$36; 12-lb., \$37, f.o.b. mill. Standard Sections, \$28, f.o.b. mill, full freight to destination.

**Structural Material.**—Conditions in the Structural market are somewhat improved as to the volume of specifications now coming in. A marked improvement in this respect over the conditions reported two weeks ago is observed. While building operations have slackened off, and no considerable volume is coming from that direction, manufacturers are, on the other hand, coming in for larger requirements, and the increase noted seems to be largely from this source. There is no change in store prices, which are quoted at 2.05c. to 2.10c., and mill prices are as follows: Beams and Channels, 3 to 15 in., inclusive, 1.86½¢.; Angles, 3 to 6 in., ¼-in. and heavier, 1.86½¢.; larger than 6 in. on one or both legs, 1.96½¢.; Beams, larger than 15 in., 1.96½¢.; Zees, 3 in. and over, 1.86½¢.; Tees, 3 in. and over, 1.91½¢., in addition to the usual extras for cutting to extra lengths, punching, coping, bending and other shop work.

**Plates.**—There is still a good demand for Plates, but the advance to 2c., Pittsburgh, made by Eastern mills, is evidently merely nominal, as but few, if any, sales are being made at that price. We quote for future delivery: Tank Plate, ¼-in. and heavier, wider than 6¼ and up to 100 in. wide, inclusive, car lots, Chicago, 1.76½¢. to 1.86½¢.; 3-16 in., 1.86½¢. to 1.96½¢.; Nos. 7 and 8 gauge, 1.91½¢. to 2.01½¢.; No. 9, 2.01½¢. to 2.11½¢.; Flange quality, in widths up to 100 in., 1.86½¢. to 1.96½¢., base, for ¼-in. and heavier, with the same advance for lighter weights; Sketch Plates, Tank quality, 1.86½¢. to 1.96½¢.; Flange quality, 1.96½¢. Store

prices on Plates are as follows: Tank Plate, ¼-in. and heavier, up to 72 in. wide, 2c. to 2.10c.; from 72 to 96 in. wide, 2.10c. to 2.20c.; 3-16 in., up to 60 in. wide, 2.10c. to 2.20c.; 72 in. wide, 2.35c. to 2.45c.; No. 8 up to 60 in. wide, 2.15c. to 2.25c.; Flange and Head quality, 0.25c. extra.

**Sheets.**—No line of finished products shows better strength or greater steadiness of movement than Sheets, and the demand is such that mills are making no perceptible headway in catching up on orders. Deliveries on Galvanized are deferred from seven to eight weeks, and on Black about six weeks. The premium of \$1 a ton is still asked for prompt shipment. We quote: Blue Annealed, No. 10, 1.96½¢.; No. 12, 2.01½¢.; No. 14, 2.06½¢.; No. 16, 2.16½¢.; Box Annealed, Nos. 17 to 21, 2.51½¢.; Nos. 22 to 24, 2.56½¢.; Nos. 25 and 26, 2.61½¢.; No. 27, 2.66½¢.; No. 28, 2.76½¢.; No. 29, 2.86½¢.; No. 30, 2.96½¢.; Galvanized Sheets, Nos. 10 to 14, 2.71½¢.; Nos. 15 and 16, 2.91½¢.; Nos. 17 to 21, 3.06½¢.; Nos. 22 to 24, 3.21½¢.; Nos. 25 and 26, 3.41½¢.; No. 27, 3.61½¢.; No. 28, 3.81½¢.; No. 30, 4.31½¢.; Sheets from store, Blue Annealed, No. 12, 2.25c.; No. 14, 2.30c.; No. 16, 2.40c.; Box Annealed, Nos. 18 to 21, 2.70c.; Nos. 22 to 24, 2.75c.; No. 26, 2.80c.; No. 27, 2.85c.; No. 28, 2.95c.; No. 30, 3.35c.; Galvanized from store, Nos. 10 to 20, 3.20c. to 3.25c.; Nos. 22 to 24, 3.45c. to 3.50c.; No. 26, 3.55c. to 3.60c.; No. 27, 3.65c. to 3.85c.; No. 28, 4c.; No. 30, 4.55c. to 4.60c.

**Bars.**—The demand for Bars continues strong and specifications are coming in freely. The mills are all pretty well sold up, but are making deliveries with reasonable promptness. No inquiries or sales for tonnages of importance have developed, though in the aggregate the volume of business in the market is large. Prices remain unchanged, 1.81½¢. Chicago, being quoted for Iron Bars, and this price may be shaded as heretofore \$1 a ton on desirable orders. Quotations are as follows: Iron Bars, 1.81½¢. to 1.86½¢.; Steel Bars, 1.76½¢., both half extras; Hoops, 2.16½¢., extras as per Hoop card; Bands, 1.76½¢., as per Bar card, half extras; Soft Steel Angles and Shapes, 1.86½¢., half extras. Store prices are as follows: Bar Iron, 2.10c. to 2.25c.; Steel Bars, 2c. to 2.10c.; Steel Bands, 2c., as per Bar card, half extras; Soft Steel Hoops, 2.35c. to 2.45c., full extras.

**Merchant Pipe.**—While it might be expected that the movement in Pipe would be checked by the colder weather, still such an effect is not at present perceptible. The demand continues active and deliveries are being furnished with no more delay than experienced for some time past. Discounts on car lots, Chicago, are as follows: Black Steel Pipe, 75.35 on the base sizes, ¾ to 6 in., and Galvanized, 65.35. From store in small lots Chicago jobbers quote 72½ to 73 per cent. on Black Steel Pipe, ¾ to 6 in. Iron Pipe is held at an advance of four to five points above these prices.

**Boiler Tubes.**—No unusual activity is apparent, although there is no abatement in demand. Mill shipments are still more or less delayed, 30 to 60 days being required in most cases. Mill quotations are as follows on the base sizes, 2½ to 5 in., in carload lots: Steel Tubes, 66.35; Iron, 53.35; Seamless, 50.35; 2½-in. and smaller, and lengths over 18 ft., and 2½-in. and larger, and lengths over 22 ft., 10 per cent. extra. Store prices are, however, unchanged, as follows:

	Steel.	Iron.	Seamless.
1 to 1½ in.....	40	35	42½
1½ to 2¼ in.....	50	35	35
2½ in.....	52½	35	30
2½ to 5 in.....	60	47½	42½
6 in. and larger.....	50	35	..

**Merchant Steel.**—Steel Bars share the general strength exhibited in other mill products, and orders are plentiful enough to keep up with mill capacities. No change is reported, either as to deliveries, which are now being made with reasonable promptness, or in prices. Quotations are unchanged, as follows: Planished or Smooth Finished Tire Steel, 1.96½¢.; Iron Finish, up to 1½ x ½ in., 1.91½¢.; Iron Finish, 1½ x ½ in. and larger, 1.76½¢., base; Channels for solid rubber tires, ¾ to 1 in., 2.26½¢., and 1¼-in. and larger, 2.16½¢.; Smooth Finished Machinery Steel, 2.01½¢.; Flat Sleigh Shoe, 1.71½¢.; Concave and Convex Sleigh Shoe, 2.06½¢.; Cutter Shoe, 2.35c.; Toe Calk Steel, 2.31½¢.; Railroad Spring, 1.96½¢.; Crucible Tool Steel, 6½¢. to 8c., and still higher prices are asked on special grades. Shafting, 50 per cent. off in car lots and 45 per cent. in less than car lots, in base territory.

**Cast Iron Pipe.**—A number of new inquiries for from 3000 to 5000 ton lots are in the market, the demand being from gas companies and other industrial corporations rather than from municipalities. We quote: Water Pipe, 4 in., \$37 to \$38; 6, 8, 10 and 12 in., \$36 to \$37; over 12 in., \$35 to \$36, with \$1 extra for Gas Pipe.

**Coke.**—It is expected that the recent floods will seriously interfere with Coke shipments, but to what extent is not yet known. Connellsville 72-hr. Coke is quoted at \$4.25 and \$4.50 for car lots at the ovens; By-Product, \$7.15, f.o.b. Chicago, prompt delivery.

**Old Material.**—The market shows no disposition to rally, and is but weakly supported by buying orders, although with the activity and higher prices in Foundry Irons



it would seem that better conditions as to price and demand should prevail. There seems a variety of opinion as to the market level of some lines, and it is difficult to fix an average that would fairly represent the market. The Chicago, Burlington & Quincy Railroad Company's list this month amounts to 3900 tons, upon which it will receive bids. The following quotations are on gross ton lots, f.o.b. Chicago:

Old Iron Rails.....	\$27.00 to \$28.00
Old Steel Rails, 4 ft. and over.....	19.00 to 19.50
Old Steel Rails, less than 4 ft.....	18.00 to 18.50
Heavy Relaying Rails, subject to inspection, 50 lb. and under.....	31.00 to 32.00
Old Car Wheels.....	25.00 to 25.25
Heavy Melting Steel Scrap.....	17.00 to 17.50
Frogs, Switches and Guards.....	17.00 to 17.50
Mixed Steel.....	15.00 to 15.50

The following quotations are per net ton:

Iron Fish Plates.....	\$23.00 to \$23.50
Iron Car Axles.....	26.50 to 27.00
Steel Car Axles.....	22.00 to 22.50
No. 1 Railroad Wrought.....	16.00 to 16.50
No. 2 Railroad Wrought.....	15.00 to 15.50
Railway Springs.....	16.00 to 16.50
Locomotive Tires, smooth.....	16.00 to 16.50
No. 1 Dealers' Forge.....	12.50 to 13.00
Mixed Bushing.....	11.50 to 12.00
Iron Axle Turnings.....	11.00 to 11.50
Soft Steel Axle Turnings.....	11.00 to 11.50
Machine Shop Turnings.....	11.00 to 11.50
Cast Borings.....	8.75 to 9.00
Mixed Borings, &c.....	8.75 to 9.00
No. 1 Mill.....	10.50 to 11.00
No. 2 Mill.....	9.50 to 10.00
No. 1 Boilers, cut to Sheets and Rings.....	12.00 to 12.50
No. 1 Cast Scrap.....	18.00 to 18.50
Stove Plate and Light Cast Scrap.....	14.00 to 14.50
Railroad Malleable.....	17.50 to 18.00
Agricultural Malleable.....	16.00 to 16.50

## Pittsburgh.

PARK BUILDING, January 23, 1907.—(By Telegraph.)

**Pig Iron.**—We note a sale of 16,000 tons of Standard Bessemer Iron made by a Shenango Valley furnace interest to a local concern, on the basis of \$22, at furnace, deliveries running over the first half of this year. This Iron had been offered for sale to several consumers at somewhat higher prices. There is not much additional inquiry for Standard Bessemer Iron at present, large consumers being covered, but quite a heavy demand is seen for Basic and Malleable Bessemer for second and third quarter delivery. We can report sales of 15,000 to 20,000 tons of Malleable Bessemer and Basic Iron for second quarter delivery on the basis of \$22, Valley furnace. We quote Standard Bessemer Iron for second quarter delivery at this price. There has been a good deal of buying in Foundry Iron for last half of the year delivery, and we are advised that some of the Northern furnaces have taken a large tonnage of Foundry for prompt shipment as high as \$24.50 to \$25, Valley furnace, and for second quarter delivery at \$23 to \$24, at furnace. We also note that a large tonnage of Northern No. 2 Foundry for second half of the year delivery has been sold on the basis of \$21.50 to \$22, at furnace, most of the tonnage at about the higher price. We note a sale of 1500 tons of Northern Forge Iron to a local consumer at \$22.25, delivered, Pittsburgh, equal to \$21.40, Valley furnace. We quote the market on Northern Forge at \$21.40 to \$21.50, Valley furnace.

**Steel.**—There is not much new inquiry for Billets or Sheet and Tin Bars, most consumers being covered by contracts. As noted last week, the supply of Steel is better, but so far there is no indication of any decided weakness in prices. We quote Bessemer Billets at \$29.50 and Open Hearth at about \$32, Pittsburgh. Sheet and Tin Bars in random lengths are about \$30, Pittsburgh. The quotation last week of \$32 on Sheet and Tin Bars was a typographical error.

(By Mail.)

The heavy buying of Pig Iron by Chicago and other Western consuming interests, much of it for delivery in the last half of the year, has imparted a decidedly firmer tone to the market, and while the tonnage of Bessemer and Basic Iron sold by producers in the Pittsburgh and Valley districts for the last half of the year has been rather light, there is no pressure on the part of the furnaces to sell. As noted last week, the supply of Steel is undoubtedly better, but so far there are no indications of any weakness in prices. The volume of new business in Finished Iron and Steel continues quite heavy, and the situation seems to have resolved itself into the condition that consumers have covered their requirements for a considerable period ahead, and the leading mills are filled up with tonnage for first half of the year and are more concerned in getting out orders than in going after new contracts. The Structural trade, which was rather quiet in December, has shown some betterment, and inquiries and new tonnage being placed are heavier. The only weak spot in the whole situation is Scrap, which is in light demand, prices having recently shown a sharp decline.

**Ferromanganese.**—The market on Ferro is being disturbed to some extent by offerings for forward delivery at

prices ranging from \$70 to \$72, delivered Pittsburgh. It is claimed that the interest making the offers is selling Ferro short, being willing to take chances on covering its sales later on. We quote 80 per cent. foreign Ferro at \$78 to \$80, the lower price being for second quarter delivery.

**Muck Bar.**—Best grades, made from all Pig Iron, continue to be held at about \$36, Pittsburgh, while that made from part Scrap is \$32 to \$33, Pittsburgh. Inquiries are better than for some time, and a sale of 600 tons of Bar made from all Pig Iron is reported on the basis of about \$36, Pittsburgh.

**Rods.**—These continue very scarce, a sale of a small lot of Bessemer Rods for prompt delivery being reported at \$39, Pittsburgh. We quote Bessemer Rods at \$37 to \$38, and Open Hearth about \$1 a ton advance.

**Skelp.**—Not much new tonnage is being placed, but the mills are filled up on contracts on which buyers are specifying freely and prices remain firm. We quote: Grooved Steel Skelp, 1.65c. to 1.70c.; Sheared Steel Skelp, 1.70c. to 1.75c.; Grooved Iron Skelp, 1.75c. to 1.80c.; Sheared Iron Skelp, 1.85c. to 1.90c., Pittsburgh, these prices depending on widths and gauges.

**Steel Rails.**—The Carnegie Steel Company took orders in the past week for about 10,000 tons, and reports inquiries from traction lines aggregating over 100,000 tons, a good part of which is expected to be placed in the near future. On Light Rails the Carnegie Company is sold up for the first half of the year. We quote Light Rails as follows: \$33 to \$34 for 20 to 45 lb.; \$34 to \$35 for 16-lb., and \$35 to \$36 for 12-lb., at mill. Angle Splice Bars are held at 1.65c., and Standard Section Rails at \$28, at mill.

**Structural Material.**—Inquiries and actual tonnage placed this month are much better than in December, and it is believed that before long there will be sufficient business coming out to give full work to the Structural mills, which is not the case at present. During the week the McClintic-Marshall Construction Company has taken about 1000 tons of bridge work for the Chicago, Milwaukee & St. Paul, 1800 tons for the Great Northern and about 1000 tons for the Lehigh Valley. A feature of the situation is that there are a good many inquiries in the market for extensions to buildings of manufacturing plants and which aggregate considerable tonnage. Prices are firm, and we quote: Beams and Channels, up to 15-in., 1.70c.; over 15-in., 1.80c.; Angles, 3 x 2 x 1/4 in. thick up to 6 x 6 in., 1.70c.; 8 x 8 and 7 x 3 1/2 in., 1.80c.; Zees, 3-in. and larger, 1.70c.; Tees, 3-in. and larger, 1.75c. Under the Steel Bar card, Angles, Channels and Tees under 3-in. are 1.60c., base, for Bessemer and Open Hearth, subject to half extras on the Standard Steel Bar card.

**Plates.**—New tonnage being placed continues heavy, while specifications are coming into the mills in such heavy volume they are not able to catch up on orders. The leading Plate mills are practically sold up for the first half of the year, and the Carnegie Company is taking orders for second half delivery. Requirements of the Steel car companies are steadily growing, an item of interest being that the Pittsburgh Railways Company is figuring on the placing of orders for 100 all Steel street cars. Prices are very firm, some of the Eastern Plate mills having recently quoted as high as 2.12 1/2c., Pittsburgh, for Sheared Plates, 1/4 in. and heavier. We quote: Tank Plates, 1/4 in. thick, 3/4 in. up to 100 in. wide, 1.70c. to 1.80c., base, at mills, Pittsburgh. Extras over this price are as follows:

	Extra per 100 lb.
Gauges lighter than 1/4-in. to and including 3-16-in.	
Plates on thin edges.....	\$0.10
Gauges Nos. 7 and 8.....	.15
Gauge No. 9.....	.25
Plates over 100 to 110 in.....	.05
Plates over 110 to 115 in.....	.10
Plates over 115 to 120 in.....	.15
Plates over 120 to 125 in.....	.25
Plates over 125 to 130 in.....	.50
Plates over 130 in.....	1.00
All sketches (excepting straight taper Plates varying not more than 4 in. in width at ends, narrowest end being not less than 30 in.).....	.10
Complete Circles.....	.20
Boiler and Flange Steel Plates.....	.10
"A. B. M. A." and ordinary Firebox Steel Plates.....	.20
Still Bottom Steel.....	.30
Marine Steel.....	.40
Shell Grade of Steel is abandoned.	

**TERMS.**—Net cash 30 days. For anticipated payments a maximum discount may be allowed at the rate of 6 per cent. per annum and for a longer time than 30 days interest shall be charged at the same rate per annum. Invoices paid within 10 days from date thereof, discount of 1/4 of 1 per cent. is allowable. Pacific Coast base, 1.60c., f.o.b. Pittsburgh, with all rail tariff rate of freight to destination added, no reduction for rectangular shapes 14 in. wide down to 6 in. of Tank, Ship or Bridge quality.

**Sheets.**—The demand for both Black and Galvanized Sheets continues fairly heavy, but the new tonnage placed so far this month is not as large as last month. The mills are still very much behind in deliveries, and on the lighter gauges are back on shipments from 6 to 10 weeks. Some that can make reasonably prompt deliveries ask a premium of \$1 a ton. Stocks held by the mills and also by jobbers are much lighter than usual at this season, while the shortage in cars is restricting shipments to some extent. The mar-

arket is very firm, and we quote: Blue Annealed Sheets, No. 10 gauge and heavier, 1.80c.; Nos. 11 and 12, 1.85c.; Nos. 13 and 14, 1.90c.; Nos. 15 and 16, 2c.; Box Annealed, Nos. 17 to 21, 2.35c.; Nos. 22 to 24, 2.40c.; Nos. 25 and 26, 2.45c.; No. 27, 2.50c.; No. 28, 2.60c.; No. 29, 2.75c.; No. 30, 2.85c. We quote Galvanized Sheets as follows: Nos. 10 and 11, 2.55c.; Nos. 12 and 14, 2.65c.; Nos. 15 and 16, 2.75c.; Nos. 17 to 21, 2.90c.; Nos. 22 and 24, 3.05c.; Nos. 25 and 26, 3.25c.; No. 27, 3.45c.; No. 28, 3.65c.; No. 29, 3.90c., and No. 30, 4.15c. We quote No. 28 Gauge Painted Roofing Sheets at \$1.85 per square, and Galvanized Roofing Sheets, No. 28 gauge, \$3.15 per square for 2-in. corrugations. These prices are for carload lots, jobbers charging the usual advances.

**Hoops and Bands.**—No new tonnage worth speaking of is being placed, but the mills are busy on specifications, which are coming in freely. We quote: Steel Hoops, 2c., and Bands for all purposes at 1.60c., base, half extras, as per Standard Steel card. These prices are for carload lots, f.o.b. Pittsburgh, plus full tariff rail rate to point of delivery, an advance of \$2 a ton being charged for less than carloads.

**Tin Plate.**—A feature of the situation is that a fair amount of tonnage in Tin Plate is being entered by the mills for delivery in third quarter on which a premium of 10c. per base box is being paid. The leading mills are pretty well sold up for the first half of the year, but can take care of some tonnage for second quarter delivery. The market is very firm, but we are advised that the supply of Tin Bars is better than for a long time. We quote \$3.90 per base box, f.o.b. Pittsburgh, for 14 x 20 100-lb. Cokes, terms 30 days, less 2 per cent. off for cash in 10 days, on which price a rebate of 5c. a box is allowed for carload and larger lots.

**Iron and Steel Bars.**—New tonnage in both Iron and Steel Bars is fairly heavy, but is not as large as in the closing months of last year. All the mills are much behind in shipments, and on both Iron and Steel Bars have their capacity sold up for several months. On Steel Bars we are advised that some of the leading mills will not accept contracts for delivery before April or May. Local mills continue to quote 1.80c. to 1.85c., Pittsburgh, on Iron Bars, but for delivery to some competitive points lower delivered prices are being made. Some of the Eastern mills are offering Iron Bars at slightly lower prices for delivery in the Pittsburgh District. We quote Steel Bars at 1.60c., base, half extras, f.o.b. Pittsburgh, for forward delivery, while for prompt shipment premiums of \$1 to \$2 a ton are being paid.

**Railroad Spikes.**—Buying by railroads continues active, and the leading makers of Spikes have a heavy tonnage on their books for delivery through the first half of this year. We quote Railroad Spikes at \$2.40 to \$2.50 per 100 lb., for forward delivery, while for reasonably prompt shipment \$2.65 to \$2.75 is being quoted.

**Merchant Steel.**—New demand is comparatively light, but the mills are busy on specifications which are being received in large volume and shipments are heavy. It is intimated that prices on Shafting are not being rigidly held for delivery in certain territory. We quote: Smooth Finished Machinery Steel, 1.85c. to 2c., depending on quality; Flat Sleigh Shoe, 1.65c. to 1.75c.; Cutter Shoe, 2.15c. to 2.20c.; Toe Calk Steel, 2.10c. to 2.15c.; Railroad Spring Steel, 1.75c. to 1.80c.; Crucible Tool Steel, 6c. to 8c., for ordinary grades, and 10c. and upward for special grades. The demand for Shafting is reported active and prices are fairly well maintained. We quote Cold Rolled Shafting at 50 per cent. off in carloads and 45 per cent. in less than carloads, delivered in base territory.

**Spelter.**—For spot shipment prime grades of Western are held as high as 6.70c., St. Louis, equal to 6.82½c., Pittsburgh. For forward delivery almost as high prices are being quoted. It is predicted that Spelter will go to 7c. or higher, St. Louis, on account of the heavy demand and scarcity of supply.

**Pipes and Tubes.**—Inquiries are in the market for a heavy tonnage of the larger sizes of Pipe for gas and oil lines, but these are not far enough along to give details at present. The general demand continues heavy, and the leading mills are sold up to April or longer. Prices are firm, the extreme discount on Merchant sizes of Steel Pipe now being about 77 and 5 off and on Iron Pipe about 72 and 5 per cent. off, for ¾ to 6 in., to the large trade. Official discounts on Steel Pipe, which are shaded about one point or more to the large trade, are as follows:

	Merchant Pipe.		Jobbers, carloads.	
			Steel.	Galv.
1½ to ¾ in.	68	68	68	68
¾ to ½ in.	70	70	70	70
½ to ¼ in.	72	72	72	72
¼ to 6 in.	76	76	76	76
6 to 12 in.	71	71	71	71
Extra strong, plain ends:				
1½ to ¾ in.	61	61	61	61
¾ to ½ in.	68	68	68	68
½ to ¼ in.	64	64	64	64
Double extra strong, plain ends:				
1½ to 8 in.	57	57	57	57

**Boiler Tubes.**—A good deal of new business is being placed in Locomotive Tubes, while the inquiries for Merchant Tubes are also showing betterment. We are advised that prices are being rigidly held. Discounts are as follows:

Boiler Tubes.	Iron.	Steel.
1 to 1½ in.	42	48
1½ to 2½ in.	43	60
2½ in.	48	62
2½ to 5 in.	55	68
6 to 13 in.	43	60

**Iron and Steel Scrap.**—The tonnage moving in Scrap is mostly on old contracts, new buying having been comparatively light for some time. Prices continue somewhat weak and indications favor a lower market. Some of the dealers have fairly large stocks of Scrap, which they are anxious to move, and there is more pressure to sell than for some time. We have again revised our quotations on a slightly lower basis and now quote as follows: Heavy Melting Scrap, \$18.50, for Pittsburgh, Sharon or Steubenville delivery; No. 1 Wrought Scrap, \$19.50 to \$19.75; No. 2 Wrought Scrap, \$17.75 to \$18; Old Steel Rails, short pieces, 6 ft. and under, for Open Hearth purposes, \$18.50; Old Steel Rails, rerollers, \$20.50 to \$21; Wrought Iron Turnings, \$14.25 to \$14.50; Bundled Sheet Scrap, \$16.50 to \$16.75; New Tin and Terne Plate Clippings, \$18.50 to \$18.75 per net ton; Low Phosphorus Melting Stock, \$22.75 to \$23; Cast Iron Borings, \$12.25 to \$12.50; Old Car Wheels, \$21; Steel Axles, \$22.50; No. 1 Cast Scrap, \$20.25 to \$20.50; Grate Bars, \$15; Stove Plate, \$16, all per gross ton, f.o.b. Pittsburgh, unless otherwise specified. In the present condition of the Scrap market it is possible that on a firm offer for a large tonnage the above prices might be slightly shaded.

**Coke.**—A large number of ovens are being built in the Connellsville and other Coke regions, and it is predicted that before the present year closes the two Connellsville regions will be making very close to 500,000 tons of Coke per week. There is a considerable scarcity of labor at some of the plants, and there is talk of several operators equipping their works with Coke extractors. The supply of Connellsville Furnace and Foundry Coke for prompt shipment is limited, and strictly Connellsville Furnace Coke for early delivery continues to bring \$3.50 to \$3.60, and 72-hr. Foundry from \$4.25 to \$4.50 a ton at oven. Furnace and Foundry Coke made outside of the Connellsville region, and which does not run quite so high in quality as strictly Connellsville, is offered at lower prices. Furnace Coke on contracts for delivery over the first half of the year is firm at \$3 to \$3.10, and Foundry at \$4 to \$4.25, but we note that most consumers have covered. The Upper and Lower Connellsville regions made last week 411,420 tons.

## Philadelphia.

PHILADELPHIA, PA., January 22, 1907.

The situation in the Iron and Steel trade is not materially different to what it has been for the past several weeks. The demand for almost all grades of Iron for early delivery shows no abatement, and those who can make prompt shipments can name pretty much their own prices. These, however, are not higher than last week, but buyers have to pay full figures without much prospect of being able to do better at any period in the very near future. The arrivals of Foreign Iron have helped local consumers considerably, and they are still largely dependent upon the prompt arrivals of further supplies. Two or three cargoes are expected to arrive in the course of the next two weeks, failing which the scarcity of this class of Iron would be a great inconvenience. The weather has not been favorable for quick voyages, so that there is some anxiety in regard to this matter. Ocean freights have advanced one to two shillings per ton, and as vessels are difficult to charter it is not improbable that after deliveries from vessels which are now afloat this source of supply will be less readily available. Meanwhile it is an open question whether our own furnaces will be able to increase their output to an extent that will give much relief in the very near future. It is expected, however, that toward midsummer supplies will be more in proportion to the demand, and there is a possibility of a somewhat easier market during the later months of the year, although in the meanwhile quotations are firm at the figures quoted during the past several weeks. The demand for finished products is very satisfactory, and so far as can be seen there is no immediate prospect of any falling off, but the reverse. Nevertheless, it is felt that this is a somewhat critical period, and there is a disposition to go slowly until the outlook becomes more distinct than it is at the present time.

**Pig Iron.**—The Pig Iron situation is somewhat mixed, although there are no evidences of weakness. It would probably be correct to say that its strength is not as distinct as it has been for a good many weeks past. The large tonnage which has been contracted for enables consumers to feel somewhat indifferent in regard to the distant future, especially at the high prices that are now demanded. Spot Iron and Iron for the entire first half of the year are extremely scarce, and for such deliveries when they can be



made holders are in a position to name their own prices, which are fully up to those quoted last week. The furnaces appear to be making no headway in reducing their shortages on deliveries. Makers of Pig Iron say that they are just about as badly off in that respect as they have ever been, and in some instances consumers who have Iron due them have men at the furnaces for the special purpose of hurrying forward any Iron that can be made available. In one instance a Lehigh Valley furnace has men from three different mills waiting to hurry forward the shipments, which clearly shows the anxiety there is to get deliveries. The unfortunate part of it is that no one knows what the furnaces may be able to turn out, as the question of getting in the primary materials depends upon the facilities furnished by the railroads, which appear to be extremely limited. It is therefore not surprising that spot Iron commands \$2 or \$3 a ton premium, because none of the mills can afford to shut down if there is any possibility of avoiding it. Under such conditions it is impossible to say what the ultimate outcome will be in regard to prices. The high figures now quoted for the last half of the year are believed to be the result of the present scarcity, which it is feared may continue for an indefinite period. Some are inclined to take their chances, because they hope that there will at least be some betterment of conditions during the summer and fall months, and if they can get their deliveries during the first half they are willing to take their chances on the last half rather than pay the prices which are now asked. These for the last half vary from \$23 to \$23.50 at furnace for No. 2 X Foundry, and 50c. to 75c. less for Basic Iron, while for the first half prices would be anywhere from \$2 to \$3 more for both of these grades of Iron, but they are so scarce that the price is liable to be almost anything that sellers choose to name. A good deal of Malleable Iron has been asked for and has been offered at \$24.50, delivered in consumers' yards, for the last half, while \$25 to \$25.50, or probably more, would be paid for prompt shipments. Gray Forge is wanted in large quantities, and would bring \$22.50 to \$23 for shipments during February and March. Foreign Iron is promptly taken at the full figures of last week, deliveries to be made during January and February. Sales of Basic have been rather light, as there is hardly anything available for the first half and buyers are not inclined to pay the present asking prices for the third and fourth quarters, which are \$23 to \$23.50, delivered. Low Phosphorus is very dull and prices are undoubtedly easier, both for spot and long dates. The following quotations are for deliveries in consumers' yards in eastern Pennsylvania or adjoining territory:

#### First Half 1907.

No. 2 X Foundry.....	\$26.50 to \$27.75
Standard Gray Forge.....	22.50 to 23.00
Basic.....	25.00 to 26.00
Low Phosphorus.....	27.00 to 27.50
Malleable.....	25.50 to 26.00
Middlesbrough No. 3, on dock.....	23.00 to 23.25
Scotch, on dock.....	25.00 to 25.25

#### Last Half 1907.

No. 1 X Foundry.....	\$26.00 to \$26.50
No. 2 X Foundry.....	24.00 to 24.50
No. 2 Plain.....	23.00 to 23.25
Standard Gray Forge.....	22.00 to 22.50
Basic.....	23.25 to 23.75
Low Phosphorus.....	27.00 to 27.50
Malleable.....	24.00 to 24.50

**Ferroalloys.**—The market is in a very unsettled condition, and all sorts of prices are talked about, and there has indeed been a very wide spread. The difficulty is to fix the date of sales to correspond with prices which has been a most difficult task and has no doubt caused considerable confusion. A sale of 3000 tons was made in November at \$69, f.o.b. Baltimore; date of shipment, however, was to be in the distant future. Since then spot lots have sold as high as \$82 and more recently about \$80, which would be about to-day's prices for spot lots. For shipments during February and March prices would be about \$75, but shipments during July and later could be done to-day at \$71 to \$72. This is a wide spread in quotations, but it is evident that later on makers are rather disposed to expect lower prices. Hence the disparity in prices between early and late shipments.

**Steel.**—The demand for Steel Billets is fairly active for small lots, but the large consumers appear to be pretty well covered, and are not in the market to any great extent at the present time. Business could be done at about \$33 to \$34 for ordinary Rolling Steel, while for forging purposes the range would be \$36 to \$40.

**Plates.**—The demand for Plates is well maintained, and specifications are unusually satisfactory. The mills are working to their full capacity, but are somewhat hampered by the shortage of Pig Iron and the difficulty in securing transportation for other materials. Taking everything into account, however, the situation is very satisfactory, with prices steady and unchanged as last quoted, viz:

	Carload. Cents.	Part carload. Cents.
Tank, Bridge and Boat Steel.....	2.13½	2.18½
Flange or Boiler Steel.....	2.23½	2.28½
Marine.....	2.53½	2.58½
Locomotive Firebox Steel.....	2.63½	2.68½

The above are base prices for ¼-in. and heavier. The following extras apply:

3-16 in. thick.....	\$0.10
Nos. 7 and 8, B. W. G.....	.15
No. 9, B. W. G.....	.25
Plates over 100 to 110 in.....	.05
Plates over 110 to 115 in.....	.10
Plates over 115 to 120 in.....	.15
Plates over 120 to 125 in.....	.25
Plates over 125 to 130 in.....	.50
Plates over 130 in.....	1.00

**Structural Material.**—There is an excellent demand for small lots, besides which some contracts of considerable importance have been made. The mills with their greatly enlarged capacity are unable to make good deliveries, however, at the prices quoted for some time past, namely: 1.83½c. to 2c. for Beams, Channels and Angles, according to specifications.

**Bars.**—The Bar trade is in good condition, and business is not hard to get at 1.93½c. for Best Refined Bar Iron. Specifications are quite satisfactory. Mills are making a large output, which is readily absorbed. Steel Bars are also in good demand, at about the same prices as Iron for prompt shipments, although nominal quotations are a tenth to a tenth and a half less.

**Sheets.**—Business in this department shows a great activity, and the pressure for early deliveries is quite marked. New business of considerable proportions has been entered at full prices which are as follows for mill shipments and a tenth additional for smaller quantities: Nos. 18 to 20, 2.80c.; Nos. 22 to 24, 2.90c.; Nos. 25 to 26, 3c.; No. 27, 3.10c., and No. 28, 3.20c.

**Old Material.**—The situation in Old Material is extremely erratic. Some articles, such as Cast Borings, command unusually high prices, while there is said to be a weaker feeling as regards Steel Scrap. This is the more remarkable when it is considered that Steel Scrap is \$5 to \$6 a ton lower than Pig Iron, but some well informed men claim that Pig Iron will have to adjust itself to Scrap, instead of Scrap adjusting itself to Pig Iron. However that may be, buyers are not offering more than \$18 to \$18.50 for No. 1 Steel, although some important sales have been made at \$18.75, so that it is difficult to reconcile the conflicting information in regard to this phase of the matter. Bids and offers for material delivered in buyers' yards are about as follows:

Steel Crops.....	\$19.00 to \$19.25
No. 1 Steel Scrap.....	18.00 to 18.50
Low Phosphorus.....	22.75 to 23.25
Old Steel Axes.....	21.50 to 22.00
Old Iron Axes.....	31.00 to 32.00
Old Iron Rails.....	27.00 to 27.50
Old Car Wheels.....	23.00 to 23.50
Choice No. 1 R. R. Wrought.....	22.00 to 23.00
No. 1 Yard Scrap.....	19.50 to 20.50
Long and Short.....	18.50 to 19.00
Machinery Scrap.....	22.00 to 22.50
Wrought Iron Pipe.....	16.00 to 16.50
No. 1 Forge Fire Scrap.....	16.75 to 17.25
No. 2 Light.....	11.75 to 12.00
Wrought Turnings.....	16.00 to 16.50
Axle Turnings.....	17.00 to 17.50
Stove Plate.....	16.50 to 17.00
Cast Borings.....	14.00 to 14.50
Grate Bars.....	15.50 to 16.00

The Pennsylvania Iron Works, Philadelphia, Pa., has moved into more commodious offices at 418 North Eighteenth street. The company has lately increased its facilities for producing all kinds of Plate metal construction.

## Cincinnati.

FIFTH AND MAIN STS., January 23, 1907.—(By Telegraph.)

**Pig Iron.**—The most prominent feature of the week's business is the continued buying for the last half of the year. Rumors have been circulated that some speculative Iron has been put on the market for this delivery at 50 cents concession over ruling quotations, but it is believed that the tonnage has been small and without effect on general conditions, established prices still showing from \$18.50 to \$19, Birmingham, for No. 2. The market for first and second quarter business has been somewhat quieter, and, while a number of consumers have found it necessary to come forward for a limited supply of early delivery Iron, the tonnage has been comparatively small and at high figures. The flood situation that has prevailed the past week has been a most serious proposition, having materially interfered with such shipments as were destined for this point, as Southern lines have placed an embargo on all northbound business through this city and refuse to allow the furnaces to make any shipments until it is raised, which it is hoped may be within the next three or four days. Prices for second quarter delivery appear to be well established at \$21 to \$22, Birmingham, with first quarter and current schedule practically the same. Reports indicate that a large number of the southern Ohio furnaces have been in severe straits during the week, either from inability to secure raw material or from water in the plants. Bird, Hamilton, Union and several others are shut down for want of Coke. Furnace No. 4 of the Sloss-Sheffield Steel & Iron Company at Birmingham is out for

90 days for relining. The new furnace of the Jackson Iron & Steel Company at Jackson, Ohio, is nearing completion, and will probably be ready for operation in June. This furnace will have a capacity of about 150 tons per day. A limited supply of High Silicon Iron is noted, with considerable inquiry at high figures. There is an inquiry for 2500 tons of Malleable for January and February delivery, another for 1000 tons of Foundry grades, with several large inquiries for No. 4 Foundry, Gray Forge and Mottled. One of the large implement concerns is said to have bought 15,000 or 20,000 tons, most of which was Malleable, during the week. Freight rates from Hanging Rock District to Cincinnati are \$1.15, and from Birmingham \$3. We quote, f.o.b. Cincinnati:

Southern Coke, No. 1.....	\$26.50 to \$27.00
Southern Coke, No. 2.....	26.00 to 26.50
Southern Coke, No. 3.....	25.50 to 26.00
Southern Coke, No. 4.....	25.00 to 25.50
Southern Coke, No. 1 Soft.....	26.50 to 27.00
Southern Coke, No. 2 Soft.....	26.00 to 26.50
Southern Coke, Gray Forge.....	23.00 to 23.50
Southern Coke, Mottled.....	22.00 to 22.50
Ohio Silvery, 8 per cent. Silicon.....	31.15 to 31.65
Lake Superior Coke, No. 1.....	26.65 to 27.15
Lake Superior Coke, No. 2.....	26.15 to 26.65
Lake Superior Coke, No. 3.....	25.65 to 26.15

#### Car Wheel Irons.

Standard Southern Car Wheel.....	\$29.00 to \$29.50
Lake Superior Car Wheel.....	27.50 to 28.00

**Coke.**—The market continues firm, most of the business moving being on contract. Shipments will probably be somewhat curtailed on account of high water in some districts. We quote best brands of Connellsville and Virginia Foundry from \$4 to \$4.50, f.o.b. ovens.

**Finished Iron and Steel.**—The market is apparently a little quieter, although specifications on contracts are said to be coming forward in a very satisfactory manner. We quote, f.o.b. Cincinnati, as follows: Iron Bars, in carload lots, 1.93c., with half extras; the same, in smaller lots, 2.10c., with full extras; Steel Bars, in carload lots, 1.73c., with half extras; the same, in smaller lots, 1.95c., with full extras; Base Angles, 1.83c., in carload lots; Beams and Channels, in carload lots, 1.83c.; Plates, ¼-in. and heavier, 1.83c., in carload lots; in smaller lots, 2c.; Sheets, 16 gauge, in carload lots, 2.15c.; in smaller lots, 2.70c.; 14 gauge, in carload lots, 2.05c.; in smaller lots, 2.60c.; Steel Tire, 1 x ¼ in. or heavier, 1.93c., in carload lots.

**Old Material.**—Scrap is in good demand, and offerings are somewhat limited. Five or six of the foundries in the city are closed account of flood, and this is not without its effect on this branch of the trade. Prices, so far as can be ascertained, are practically unchanged. We quote dealers' prices, f.o.b. Cincinnati, as follows:

No. 1 R. R. Wrought, net ton.....	\$17.75 to \$18.25
Cast Borings, net ton.....	9.50 to 9.75
Steel Turnings, net ton.....	11.75 to 12.75
No. 1 Cast Scrap, net ton.....	16.75 to 17.75
Old Iron Axles, net ton.....	26.75 to 27.75
Old Iron Rails, gross ton.....	27.00 to 27.50
Old Steel Rails, long, gross ton.....	19.25 to 20.25
Relaying Rails, 56 lb and up, gross ton.....	28.75 to 29.75
Old Car Wheels, gross ton.....	22.75 to 23.25
Low Phosphorus Scrap, gross ton.....	21.25 to 21.75

## Birmingham.

BIRMINGHAM, ALA., January 20, 1907.

**Pig Iron.**—Buying for all deliveries continues to a certain extent, but is confined to small lots. The spot market is considerably easier, as the furnaces seem to have been able to produce an excess of their estimate and, with one or two exceptions, all have Iron to sell. The price on this varies from \$22.50 to \$24, depending on the quantity each has for sale. For second quarter the price is from \$21 to \$22, and for last half from \$18.50 to \$19. The car situation is about the same as last week, with furnaces endeavoring to ship all they possibly can before the advance in freight on February 1. Who will pay this advance on Iron which should have been shipped prior to February 1 is a question to which all interested are giving considerable attention. Many melters are taking the position that the furnaces have not shipped as much low priced contract Iron as they could, but have given their spot customers the benefit of the cars they obtained. This they claim vitiates that part of the contract which relates to car supply, and therefore the furnaces should stand the extra freight on all Iron due before the advance goes into effect. That this is true in many instances no one doubts, but just which of the producers have or have not been guilty of this discrimination is something which will have to be substantiated before purchasers can consistently claim the difference. Some of the furnaces have practically admitted their liability, while others state most positively that they will not pay the advance. Another effort will be made on the 30th, when the Southern Iron Committee, which is composed of the traffic managers of the Southern railroads, meets representatives of the furnace interests at Palm Beach, Fla., for a further discussion of the proposed advance in rates. Every pressure will be brought to bear to have the rate withdrawn, but inasmuch as the protests made last week had no effect

it is not thought the furnace people will be successful this time.

**Cast Iron Pipe.**—The contract to be let this week by the city of New Orleans for 38,000 tons of Water Pipe is overshadowing all other pending deals. While the delivery of this Pipe will cover a period of more than two years and could be easily handled by any one of the larger foundries, it is very probable that the order will be split up, and it is quite likely that owing to the high prices now necessarily prevailing only the requirements for this year will be placed at this time. The Pipe market is in excellent shape, with quotations on Water Pipe as follows: 4 to 6 in., \$35; 8 to 12 in., \$33; over 12 in., average, \$30, with \$1 per ton extra for Gas Pipe.

**Old Material.**—Dealers report the market in a satisfactory condition. The demand is possibly not so urgent as a few weeks since, but offerings are by no means as large, thus keeping about the average amounts on yards here. Prices are unchanged and are approximately as follows, per gross ton f. o. b. cars:

Old Iron Rails.....	\$22.00 to \$22.50
Old Iron Axles.....	19.50 to 20.00
Old Steel Axles.....	17.50 to 18.50
Old Car Wheels.....	19.50 to 20.00
No. 1 Railroad Wrought.....	20.00 to 20.50
No. 2 Railroad Wrought.....	15.50 to 16.00
No. 1 Country Wrought.....	15.50 to 16.00
No. 2 Country Wrought.....	12.50 to 13.00
Wrought Pipe and Flues.....	13.00 to 13.50
Railroad Malleable.....	14.00 to 14.50
No. 1 Steel.....	15.00 to 15.50
No. 1 Machinery Cast.....	16.00 to 16.50
Stove Plate and Light Cast.....	12.00 to 12.50
Cast Borings.....	8.75 to 9.25

## Cleveland.

CLEVELAND, OHIO, January 22, 1907.

**Iron Ore.**—A small tonnage of non-Bessemer and considerable Siliceous Ore have been sold the past week at the prevailing prices. Furnaces seem to be pretty well covered for eight or nine months at least, but some dealers predict a shortage late in the season among consumers whose requirements of high grade Ores exceed expectations. Some 1906 Ore held on Lake Erie docks by furnaces that found they had more than they needed has been quickly sold at 1907 prices. One Eastern furnace, unable to buy the Ore that it needed in Buffalo, made its purchase of a local dealer the past week, paying additional freight and switching charges from the Ashtabula docks. The expected 1907 output of Bessemer Ore was bought up so quickly at the beginning of the buying season a few weeks ago that some shippers think they could get a premium for it now if they had any to sell and should ask a premium price. The movement of Ore from the Lake Erie docks, which started in lively about 10 days ago, continues heavy. Quotations at the Lake Erie docks are as follows: Old Range Bessemer, \$5; Mesaba Bessemer, \$4.75; Old Range non-Bessemer, \$4.25; Mesaba non-Bessemer, \$4; Siliceous Bessemer, \$2.75; Siliceous non-Bessemer, \$2.50.

**Pig Iron.**—The buying movement in Northern Foundry Iron for the last half of 1907 continues very active, although the sales may not be quite as heavy as a week ago. The activity has spread to Basic and Malleable Irons and the sales of these Irons have also been quite heavy. The market is firm, but with no advance in prices. More consumers who have been holding off in the hope of getting lower prices for the last half are apparently becoming convinced that there is little prospect of cheaper Iron this year and are rushing to cover, at least for part of their requirements for the last half of the year. A few small sales of Northern Foundry No. 2 for spot delivery have been made at \$26 to \$27 during the week. For last half a variety of prices is asked. One dealer is still offering No. 2 Foundry for the last half at \$21.50, Valley furnace, but other furnaces are asking \$22 to \$23, Valley furnace, and refuse to consider an offer at less than \$22. Inquiries for Basic Iron are numerous, and one interest has sold considerable during the week at \$22, Valley furnace, for the second quarter, and \$21.50 for the last half. Dealers are holding Malleable Iron at \$22, Valley furnace, for the last half. Some Southern Iron was sold during the week for last half delivery, most of the dealers holding the price at \$19, Birmingham. No sales were made for the first half. No further sales of foreign Iron was made in the week, none being available for immediate delivery. Local dealers handling foreign Iron expect another shipload to reach Philadelphia about February 1 and are quoting it at \$26, Cleveland, promising delivery early next month. Quotations for the last half, 1907, f.o.b. Cleveland are as follows:

Northern Foundry, No. 1.....	\$23.00 to \$23.50
Northern Foundry, No. 2.....	22.50 to 23.00
Northern Foundry, No. 3.....	22.00 to 22.50
Gray Forge.....	21.50 to 22.00

**Coke.**—The market remains firm. Deliveries are fairly good, but it is expected that they will be seriously interfered with in some sections by the floods and cold weather this week. Foundry Coke is selling at \$4 to \$4.25 at oven for



prompt shipment and first half. Furnace Coke is quoted at \$3.75 to \$3.85 at oven.

**Finished Iron and Steel.**—The important feature of the market the past week has been the heavy specifications that have come in on contracts for all kinds of Finished Material. If anything, the specifications are a little the heaviest on Plates, although the specifications on Shapes are large. The rush of all kinds of specifications causes much satisfaction, as it removes the danger that some kind of mills might be overloaded with orders, while others for a time might have comparatively little business on hand. One concern reports that its specifications so far this month have been twice as heavy as any month last year. One large interest is now asking for specifications for the second quarter, but makes no promises that it will make the deliveries during that quarter. Heavy specifications on local shipyard contracts for Structural Shapes and Plates have come in during the week. The heavy general specifications are attributed partially to the fact that consumers have completed their inventories and are anticipating their needs by getting their orders in early, because of the delays they are bound to suffer in deliveries. Deliveries have not improved, and, if anything, the Bar situation is worse in that respect. Large consumers of Bars are pretty well covered for the first half, and some mills are selling Steel Bars for the last half. All mills, except perhaps the Structural, seem to be loaded up now for the first half of the year. Prices on all kinds of Finished Material remain firm and unchanged. Mill agents report that they have contracted for very little new business the past week, the orders they have received being small ones. Jobbers, however, report a heavy demand for all kinds of Finished Material and large sales out of stock for immediate delivery. While the large mills refuse to take orders for prompt shipment, some of the smaller ones continue to book such orders at premium prices. One mill is still selling Plates at 2c., Pittsburgh, and the price ranges from that down to 1.70c., Pittsburgh. Local warehouses are selling Steel Bars at 1.90c. out of stock, and are getting 2c. for Iron Bars out of stock. Sheets are strong and steady. No change is noted in local warehouse prices, which are as follows: Blue Annealed, No. 10, 2.25c.; No. 28 One Pass Cold Rolled, 2.90c.; No. 28 Galvanized, 3.90c.

**Old Material.**—The market continues weak and a further decline in prices in some kinds of Old Material is noted. The demand is light, consumers having covered for some time ahead several weeks ago. Inquiries have been more numerous the past day or two, however, and dealers expect that business will improve materially by the first of next month. The following are dealers' prices to the trade per gross ton, f.o.b. Cleveland:

Old Steel Rails.....	\$18.00 to \$18.50
Old Iron Rails.....	25.00 to 26.50
Steel Car Axles.....	21.50 to 22.00
Old Car Wheels.....	21.50 to 22.00
Heavy Melting Steel.....	17.00 to 17.50
Railroad Malleable.....	18.00
Agricultural Malleable.....	16.00
Light Bundled Sheet Scrap.....	16.50 to 17.50

The following quotations are per net ton, f.o.b. Cleveland:

Iron Car Axles.....	\$29.75 to \$30.25
Cast Borings.....	10.50 to 11.00
Iron and Steel Turnings and Drillings.....	12.50 to 13.00
No. 1 Busheling.....	16.00
No. 1 Railroad Wrought.....	18.00 to 18.50
No. 1 Cast.....	18.50
Stove Plate.....	15.00 to 15.50
Tin Scrap, at factory.....	20.00

## The German Iron Market

BERLIN, January 5, 1907.

Developments in the German Iron industry since my last report indicate that the boom is still gaining in intensity. Production continues to expand, allotments to be increased and prices to rise. These are the striking features of the situation, and they all speak the same language. We are evidently still on the upward wave. The stock market, too, has drawn this conclusion from recent company reports and market news; hence the tendency of Iron shares for about a month has been pretty firm, notwithstanding the highly unfavorable state of the money market. Even after the discount rate of the Imperial Bank was advanced about the middle of December to 7 per cent. Iron and Coal stocks continued to advance moderately. This is the strongest possible evidence of the high degree of public confidence in the soundness of the business situation. It is certain that this confidence has been greatly strengthened since two or three months ago, when people were much occupied in trying to find reasons for believing that the boom was drawing to its close. One hears much less of such talk now, and confidence in the staying qualities of the boom has been renewed.

### Price Advances.

At the meeting of the Düsseldorf Exchange yesterday Luxemburg Foundry Iron rose 4 marks, to 72, which corresponds with the advance ordered earlier in the week by the Luxemburg Syndicate. English Foundry, No. 3, however, which had risen 4 marks during the latter part of

November and the first week in December, lost 2 marks on the Düsseldorf Exchange two weeks ago. The drop was due to a too rapid advance and does not signify anything as to the general tendency of the market. At yesterday's meeting of the Exchange the Iron market was reported as very firm. At a meeting this week of the Rhenish-Westphalian Wrought Iron Mills an immediate advance of 5 marks the ton was voted in view of the rise in Luxemburg Pig. The various qualities of Wrought Iron now range between 170 and 195 marks. The Band mills have just ordered an advance of 5 marks on export orders and 2.50 marks for the home market. The Association of German Foundries recently added 1 mark per metric hundredweight on all castings. About the middle of December the Sheet manufacturers raised the price of Sheets by 5 marks.

The advance of prices in the course of 1906, when the total movement comes to be considered, makes a pretty formidable appearance, and it does not fully substantiate the much repeated assurances that the great syndicates have been very moderate in marking up prices. Prices are, indeed, not yet so high as they were seven years ago, when the great boom of that time was at its high water mark; but in many goods they are not far below them. The following table compares the present prices of certain goods with those of a year ago and with the average for 1900:

	January, 1906.	January, 1907.	Average, 1900.
Puddling Iron (marks per ton).....	56	78	90
Spiegeleisen (marks per ton).....	67	93	110
Thomas Iron (marks per ton).....	59	75	119.20
Foundry Iron (marks per ton).....	66	85	97.33

Since the middle of 1905 the prices of half rolled material have risen throughout an average of 20 marks; Girders and Structural Forms, from 112 to 133.50 marks; Bars, from 120 to 165 marks (215 marks about the beginning of 1900), and Rolled Wire, from 125 to 155 marks (185 in 1900).

### Production Expanding.

Hand in hand with the advance of prices has gone the expansion of production. The existing allotments, of the Steel Verband in class A goods (half finished materials, Structural Forms and Railroad Steel) are more than 21 per cent. above those of a year ago, while the increase in class B (other kinds of Steel goods than those just mentioned) is more than 27 per cent. With the beginning of the new year a 3 per cent. increase on class A goods went into effect. Two weeks ago the allotments in Bars were increased by 10 per cent., after the Verband had refused for several months to make such an increase. As recently as November 22 the Verband had rejected an application for the increase on the ground that the existing scarcity of half finished Steel would only be intensified by raising the production of Bars. In view of the prodigious demand for Bars, however, the manufacturers persisted in their efforts and finally secured two weeks ago the desired increase. At the same time the allotments in Rolled Wire were raised by 5 per cent., after having been advanced by a similar figure November 22. On that date, too, allotments in Piping were increased by 20 per cent.

### The Latest Report of the Steel Verband

is of a still more satisfactory character than previous reports during the course of the year. It says that the works are pressed with orders to an extraordinary degree, and new orders can only be taken when buyers consent to dates of delivery four to six months ahead. The arrival of specifications on goods previously ordered continues at a very brisk pace. In half rolled material it still remains difficult to supply the demands of home consumers at contract dates; the requirements for the first half of 1907 have, in the main, been contracted for, and foreign business remains good and prices firm. Orders for Steel Rails, including supplies for mines and street railroads, continue to come in briskly, and they extend far out into this year; a good volume of foreign orders has been taken, and others are under negotiation. Structural Shapes have been ordered sufficient to cover the demands of the current quarter, and many orders run through the June quarter.

Dealers have been exerting themselves to replenish their stock of Structural goods, which had been pretty thoroughly depleted through the great activity in building operations. They fear that if they delay their orders till spring they will fail to get goods promptly, and are hence availing themselves of the winter months to fill their stocks. Orders for Structural Material run six months ahead. The foreign demand remains good, even at higher prices, but the mills are compelled to ask for such long periods of delivery that they are not getting much foreign business.

### The Pig Iron Trade.

The scarcity of Pig Iron, which has been felt for many months, still remains a troublesome factor for consumers. Especially in Foundry grades are large orders seeking placement, but most of these have to be refused for lack of stocks on hand. English Foundry continues to arrive on the Ruhr in large quantities. Imports of Iron into Germany in October and November were more than for the first four months of the year, while exports were the lowest since June. Imports for 11 months amounted to 596,900 tons, or 252,000 tons

more than for the like period of 1905. The excess of exports over imports dropped in November to the lowest level of the year, with the single exception of January.

The output of Pig Iron in November reached 1,061,500 tons, being 73,000 tons more than in November, 1905. The production for 11 months was 11,352,000 tons, as against 10,987,000 tons for the entire year 1905. I estimate the years production at 12,425,000 tons. Everything indicates that the production will continue to gain and that 1907 will score a pretty large increase over 1906.

The Iron furnace at Lübeck, previously mentioned in this correspondence, is approaching completion, and it is expected that it will be blown in about the middle of the year. Work is about to be commenced at Emden on a furnace of the new Hohenzollernhütte, and a foundry is to be built in connection with it. There is also some talk of a Steel mill annex. The furnace to be erected will have a daily capacity of 180 tons. It will be completed in about a year. Both these furnaces will run on Swedish and Spanish Ores, which will be discharged directly from ships to the furnaces.

In view of the difficulty experienced by such rolling mills in Western Germany as are dependent upon other establishments for their material in securing adequate supplies of half rolled Steel, plans are on foot to establish one or more Steel plants in the Siegen District and the Sauerland. These so-called "pure" rolling mills, as distinguished from the great establishments which produce their own Steel, have long complained of the disadvantages of their position, being placed at the mercy of the great Steel Verband, both as to prices and the amounts to be supplied to them. Some of these plans also contemplate the erection of blast furnaces, to be jointly owned in groups by five or six of the "pure" rolling mills. With each furnace plant a Siemens-Martin converter will be built. According to one report, the erection of one such plant in the Sauerland has already been assured; but this is accepted with much doubt among the great mills connected with the Verband, since it is not believed that these smaller rolling mills can command the necessary capital to carry out their plan.

#### Syndicate Operations.

Negotiations for the prolongation of the Steel Verband beyond June 30 are in progress, but it seems very difficult to overcome the obstacles in the way. These have been so great that some pessimists have doubted whether the combination would be renewed at all. The latest reports, however, are more cheerful. The chief difficulty has been in arranging a satisfactory scale of prices as between the works on the lower Rhine and those situated on the Saar and in Lorraine and Luxemburg. The Gas and Boiler Piping Association, which expired by limitation at the end of the year, has been prolonged to June 30. Repeated meetings had been held for the purpose of reorganizing this syndicate, but they failed to bring about the necessary harmony of views, and at last, in a fit of desperation, a prolongation for six months was voted.

### New York.

NEW YORK, January 23, 1907.

**Pig Iron.**—The effort on the part of some sellers of Pig Iron to market some spot Foundry Iron and place some metal for prompt delivery has led to a weakening of the market, and to lower prices. While comparatively little business has been done, the irregularity is somewhat marked. It appears that the majority of Foundry operators took care of themselves during November and December, and that the majority of them are now in an easy position as to supplies. Northern spot iron is now offered by some sellers on the basis of \$24.50 to \$25. The market for delivery during the second half has been rather quiet in this district. In New England, however, there have been sales aggregating about 8000 tons, the price in isolated instances dipping slightly below \$24, delivered. A Connecticut interest has purchased about 6000 tons of Malleable Iron, the larger part of it, 5000 tons, being bought for second half on the basis of close to \$21, Valley furnace. We quote spot Northern Iron, in small lots, \$25.50 to \$26.50 for No. 1 X, and \$24.50 to \$25 for No. 2 Foundry. For the first half we quote \$25.50 to \$26 for No. 1 Foundry, \$24 to \$25 for No. 2 Foundry and \$23.50 to \$24 for No. 2 Plain. For the second half we quote \$23.50 to \$24 for No. 2 Foundry. No. 2 Middlesbrough is \$22 to \$23, on dock, and Scotch \$24.50 to \$25, on dock.

**Steel Rails.**—The business reported for the week runs above 75,000 tons, including two contracts which together amount to 49,000 tons. Among sales reported are 6000 tons to the Cœur d'Alene & Spokane Railway, 1500 tons to the East St. Louis & Suburban, 1500 tons to the Morehead & North Fork, 1000 tons to the Ulster & Delaware, 2000 tons to the Cananea Consolidated Copper Company, 1000 tons to the Buffalo & Southern, 3000 tons to the Steubenville & East Liverpool, 2000 tons to the Boston & Northern, 2000 tons to the Washington, Baltimore & Annapolis Electric Railway, 1000 tons to the Atlantic Shore Line and 3000 tons in miscellaneous lots.

**Structural Material.**—The principal contract closed in the past week was for 6600 tons of bridge work for the Chicago, Milwaukee & St. Paul Railroad, taken by the American Bridge Company. Three bridges are to be built over the Missouri River, each having four spans. Most fabricating companies report a quiet time in January, and some of the work that has been awarded has gone at lower prices than have prevailed for some time. It is the usual thing early in the year to find active bidding by concerns that are not well provided with work. Reports agree that a vast amount of Structural business is in sight or is being figured on, but for financial or other reasons it is slow in coming out. New York City has not as much large work in sight as at this time last year, but the aggregate of that for which plans are completed or are under way is fully as large. The statement that the New York Central Railroad is postponing some improvement projects in view of money market conditions does not seem to have a general application to railroad work; moreover, this policy will not at all affect the terminal improvements which the New York Central Railroad has under way in New York City. The New York, New Haven & Hartford Railroad has inquiries out for bridges on the Harlem Division requiring 1700 to 1800 tons of Steel. A local export firm has been in the market for two Scherzer lift bridges. Structural mills report that specifications have improved in the past two or three weeks, and the outlook is now better than in the month of December. A heavy tonnage of Steel, probably from 50,000 to 60,000 tons, is being figured on for buildings in Chicago, St. Louis, Kansas City, New Orleans and New York City. Some of this work is expected to be placed within the next fortnight. In New York City recent contracts include 8500 tons for the extension of the Metropolitan Life Insurance Company Building and 2000 tons for a building devoted to the Little publishing interests. We quote on mill shipments, tidewater deliveries, as follows: Beams, Channels, Angles and Zees, 1.84½¢.; Tees, 1.89½¢.; Bulb Angles and Deck Beams, 1.99½¢. On Beams 18 to 24 in. and Angles over 6 in. the extra is 0.10¢. Sales out of stock of material cut to length are at 2¼¢. to 2½¢.

**Bars.**—The volume of business in Bar Iron has been fair, with 1.84½¢., tidewater, the prevailing price on Bars for reasonably prompt delivery. Some mills are asking 1.89½¢., and are refusing to take business at anything less. The Eastern Bar Iron manufacturers, at a meeting held in this city January 17, adopted the same quantity differentials for Bar Iron as those which have long prevailed on Steel Bars, as follows: Specifications for less than 2000 lb. of a size and not less than 1000 lb., an advance of 1-10¢. per lb.; less than 1000 lb. of a size, advance 3-10¢. per lb. over the base price. Steel Bars are quite active at 1.74½¢., tidewater, to 1.84½¢., according to specifications and time of delivery, with sales of several thousand tons reported.

**Plates.**—Eastern mills are maintaining their prices as made by the last advance, but are only getting small orders on which quick shipment is imperative. Buyers are giving orders to Western mills for such material as is not needed for immediate use. Most of the business, however, which is thus being placed with Western mills is understood to consist of Universal Plates. The range of quotations, tidewater delivery, taking the low price on long deliveries of Western mills and the rate made by Eastern mills, is as follows: Sheared Tank Plates, 1.84½¢. to 2.14½¢.; Flange Plates, 1.94½¢. to 2.24½¢.; Marine Plates, 2.24½¢. to 2.44½¢.; Firebox Plates, 2.75¢. to 3.50¢., according to specifications.

**Cast Iron Pipe.**—Inquiries continue numerous and foundries are still booking a good quantity of work. No important contracts are in sight in this immediate locality, but a great deal of interest is being taken in the outcome of the New Orleans, letting which is expected to take place to-day. While prices are well maintained in this market, manufacturers who are quoting on business in New England find that they are still being slightly underbid by brokers, who are presumed to have made speculative purchases of Pipe some time ago. The business thus taken is not very large, amounting during the past week to possibly 2000 tons. Quotations for general business continue to range from \$35 to \$35.75 per net ton on 6-in. at tidewater.

**Old Material.**—The undertone of the Scrap market is probably stronger to-day as a whole than since the last week in December. The scarcity and high prices of Pig Iron, together with the scarcity of Heavy Cast Scrap, Stove Plate and Cast Borings, are having an influence over the other grades of Old Material, so much so that dealers are not inclined to sell at prices quite freely quoted two weeks ago. Nearly all the principal rolling mills in the East have been practically out of the market on No. 1 Railroad Wrought and No. 1 City Wrought for nearly 60 days, and it is most remarkable that the prices of these grades have kept up so well considering this fact. Heavy Cast and Stove Plate for foundry use and for puddling by rolling mills lead all other commodities as far as demand and prices go, followed closely by Cast Borings and desirable Heavy Steel Turnings. The production of Cast Borings is greater than ever before, because all machine shops and



factories producing them are running day and night; but great as the production has been, the supply does not meet the demand. The increased consumption is largely due to the fact that some of the large Steel mills that never purchased Borings before have been in the market recently and have bought blocks of several thousand tons. All the Borings that were on hand have been disposed of and practically shipped; in fact, the production for the first six months of the principal producers has been put under contract with Steel mills. There has not been a time in several years in this vicinity when there was so little Heavy Cast, Stove Plate and Borings stored in the yards as at present. In Heavy Steel Scrap, which is a very important factor in the Scrap trade both East and West, taking as a comparison a year ago and to-day, a material change is noted. Two or three of the principal dealers then had on hand about 50,000 tons in the metropolitan district. To-day it would be difficult to make up 500 tons in the New York and Brooklyn yards. If the tonnages that are reported as being sold by the various brokers here and at Philadelphia, Pittsburgh, Cleveland and Chicago are approximately correct there may be a scramble for Heavy Melting Steel Scrap before March 1. The following are approximate quotations per gross ton, f.o.b. cars New York:

Old Girder and T-Rails for Melting.....	\$16.25 to \$16.75
Heavy Melting Steel Scrap.....	16.25 to 16.75
Old Steel Rails, rerolling lengths.....	19.50 to 20.00
Relaying Rails.....	28.00 to 29.00
Old Iron Rails.....	24.00 to 25.00
Standard Hammered Iron Car Axles.....	28.50 to 29.50
Old Steel Car Axles.....	21.00 to 22.00
No. 1 Railroad Wrought.....	21.00 to 21.50
Iron Track Scrap.....	18.00 to 18.50
No. 1 Yard Wrought, long.....	18.50 to 19.00
No. 1 Yard Wrought, short.....	17.50 to 18.00
Wrought Pipe.....	14.50 to 15.00
Light Iron.....	11.00 to 11.50
Cast Borings.....	12.00 to 12.50
Wrought Turnings.....	14.50 to 15.00
Old Car Wheels.....	22.50 to 23.00
No. 1 Heavy Cast, broken up.....	19.00 to 20.00
Stove Plate.....	16.00 to 16.50
Grate Bars.....	14.00 to 14.50
Malleable Cast.....	18.00 to 19.00

N. S. Bartlett & Co., who have opened an office in the Whitehall Building, 17 Battery place, New York, will hereafter represent the Virginia Iron, Coal & Coke Company as sole agents for the Crozer, Radford, Max Meadows, Bristol and Watts brands of Pig Iron, not only in the New England States where they have acted as representatives for many years, but also in the additional territory defined as north of and including Richmond, Va., and east of Pittsburgh, omitting Pittsburgh and what is known as the Pittsburgh District.

## Metal Market.

NEW YORK, January 23, 1907.

**Pig Tin.**—Prices advanced steadily during the week, although the volume of business was small. On the 17th sales were made at 41.55c., receding to 41.50c. on the 18th, but advancing on the 21st to 41.85c. On the 22d sales were made at 42c. to 42.10c. Tin in this market is not plentiful and there seems to be little pressure to sell. The London market has for some weeks been undergoing an extended drive. This has been exerted by powerful forces, but it was necessary to keep selling Tin in order to force prices down. Whether the market will rebound rapidly when this pressure is removed is problematical, but it is well to note that a number of London houses are very optimistic on the outlook. About 2500 tons have arrived since the first of the month, and of the afloats, amounting to 2104 tons, about 750 tons will arrive this month. It would appear that deliveries into consumption will be slightly less than the arrivals. It is undoubtedly true that considerable Tin has been shipped direct to the interior. The London market closes to-day at £192 5s. for spot and futures. In New York Tin can be had to-day at 42c.

**Copper.**—There has been quite a noticeable falling off in the volume of new business, but this is to be expected, as consumers have practically covered their requirements for some time ahead. New business for future delivery can be placed at 24.75c. to 25.25c. for Lake, 24.75c. to 25c. for Electrolytic and 24.50c. to 25c. for Casting grades, net cash. For prompt and nearby deliveries premiums above these prices would have to be paid. The extreme limit of the premium, which would be 1c. per lb., would buy small lots of Copper for delivery out of store. The scarcity of Copper has been magnified considerably by hysterical press dispatches. Retail lots of Lake, say 2 or 3 tons of metal, have been sold during the week at 25¼c. for Lake, 25½c. for Electrolytic and 25¾c. for Casting grades. Manufacturers of finished material are marking up prices rapidly, an advance of 1c. per lb. having been made in the price of Copper Sheets, bringing the base price to 30c. The London market is easier, spot being held at £106 15s. and futures at £108, while Best Selected is held at £114. The exports so far this month are good, amounting to 11,438 tons. From present indications the total exports for the month will exceed those for the corresponding month in 1906.

**Pig Lead.**—The scarcity of spot Lead continues, and it is difficult to say when the situation will be relieved. Some Lead can be had at 6.30c. to 6.35c., but no large quantity could be obtained at that figure. Shipments from the West are firmer at 6.30c., and the St. Louis market is strong at 6.10c. to 6.12½c. The American Smelting & Refining Company continues to be behind in the matter of deliveries. The London market is firm, closing to-day at £19 15s.

**Spelter.**—The scarcity, which is now common in all metals, seems to be more pronounced in Spelter than in any other. A carload lot of prime Western Spelter in New York would probably have to be taken from store, and would command a price of 7c. to 7.25c., according to the urgency of the buyer's requirements. Shipments can be had on a basis of 6.90c. to 7c., New York, and in St. Louis the market is firm at 6.70c. to 6.75c. Prices in London are considerably easier at £26 17s. 6d.

**Antimony.**—There is an abundance of metal in this city, and sellers are offering it freely. While it is true that one of the leading importers holds the price at 26c. for Cookson's, it can be purchased considerably under this figure from second hands. Hallett's can be bought for importation, f.o.b. and duty paid, New York, at 24.25c. The general range of price would be 25.25c. to 25.75c. for Cookson's, 24.50c. to 25c. for Hallett's, while outside brands can be had at 23.75c. to 24.75c. It is even possible that on a large desirable order concessions would be made from these prices.

**Ferroalloys.**—Stocks of Ferrosilicon are low, although buying during the past week has not been so very active, \$110 to \$112 being quoted for 50 per cent., with but small concessions obtainable for future delivery. For 75 per cent. Ferrosilicon the unchanged price of \$150 is quoted. Ferromanganese continues to show some strength and is held at \$78.

**Tin Plate.**—Business is a trifle dull, especially in the Terne Plate trade. At the mills no apprehension is felt on account of the large number of orders already on the books of manufacturers for deliveries during the latter part of the year. In New York \$4.09 per base box continues to be quoted, and in Pittsburgh, \$3.90. These prices are subject to the usual trade discounts.

**Old Metals.**—Although there is a good demand for Scrap, prices are unchanged and continue to be subject to variations according to the needs of consumers. We quote dealers' selling prices as follows:

	Cents.
Copper, Heavy Cut and Crucible.....	23.00 to 23.50
Copper, Heavy and Wire.....	22.25 to 22.75
Copper, Light and Bottoms.....	20.00 to 20.50
Brass, Heavy.....	16.25 to 16.50
Brass, Light.....	13.50 to 13.75
Heavy Machine Composition.....	20.50 to 21.00
Clean Brass Turnings.....	14.75 to 15.25
Composition Turnings.....	17.50 to 18.00
Lead, Heavy.....	6.00
Tin Lead.....	5.70
Zinc Scrap.....	5.00

## Iron and Industrial Stocks.

NEW YORK, January 23, 1907.

A decided setback in stock values occurred the past week, which was not ascribed to any specific reason, but was probably owing to a combination of causes operating in a market susceptible to unfavorable influences. The lowest point on some stocks was reached on Friday, but in other cases not until Monday. The range of prices from Thursday of last week to Tuesday of this week on active stocks was as follows: Steel common 46 to 48½, preferred 104½ to 106; Car & Foundry common 42½ to 44½; Locomotive common 70¼ to 73½; Steel Foundries preferred 44 to 45½; Colorado Fuel 50¼ to 54½; Pressed Steel common 52¼ to 55¼; Railway Spring common 53¼ to 55; Republic common 36½ to 39, preferred 97 to 99; Sloss-Sheffield common 72½ to 74½; Tennessee Coal 154 to 160; Cast Iron Pipe common 47 to 48½, preferred 87 to 88½; Can preferred 51½ to 54. Some recovery occurred on Monday, and the market was higher on Tuesday. In decided comparison with the course of other stocks, Virginia Iron, Coal & Coke stock took a remarkable jump, touching 97 on Tuesday, which is the highest price ever attained by it. Last transactions up to 1.30 p.m. to-day are reported at the following prices: United States Steel common 47¼, preferred 106½; Car & Foundry common 44½, preferred 101½; Locomotive common 73¼, preferred 111½; Steel Foundries common 10, preferred 45; Colorado Fuel 52½; Pressed Steel common 54½, preferred 99; Railway Spring common 54; Republic common 38, preferred 99; Sloss-Sheffield common 74; Tennessee Coal 159½; Cast Iron Pipe common 47; Can common 5¼, preferred 51¼.

President Cyrus H. McCormick of the International Harvester Company has issued a statement to the stockholders in which he gives the net earnings of the company for 1906 at \$8,622,445.70. The earnings for 1906 were the largest in the history of the company, being over \$1,000,000 larger than those of 1905. The company has been paying 4 per cent. dividends for the past three years, but expects to pay

7 per cent. hereafter on its new cumulative preferred stock. The company's present stock issue of \$120,000,000 is to be divided equally into preferred and common stock. The new preferred stock will carry dividend from February 15.

**Dividends.**—The Bethlehem Steel Company has declared a quarterly dividend of three-quarters of 1 per cent. on the preferred stock, payable February 1.

The Cambria Steel Company has declared a semiannual dividend of 1½ per cent., payable February 15.

The Jefferson & Clearfield Coal & Iron Company has declared the regular semiannual dividend of 2½ per cent., payable February 15.

The Independent Pneumatic Tool Company, Chicago, Ill., has declared the regular quarterly dividend of 3 per cent.

The Consolidated Car Heating Company has declared a semiannual dividend of 1½ per cent., payable February 1.

### Custom Decisions.

#### Nickel Anodes.

The United States Circuit Court at New York, in passing upon the classification of nickel anodes imported by Hermann Boker & Co., lays down principles of general application to this line of imports. In construing paragraph 185 of the tariff law enumerating nickel, nickel oxide, and nickel alloy, "in pigs, ingots, bars or sheets," the court holds that nickel is not included unless in one of the forms enumerated, and that anodes in the form of plates are consequently excluded. In defining the word "sheets," as used in the law, Judge Hazel says a sheet of metal is comprehended to be broad, thin and expanded, whereas anodes, consisting of nickel plates about 12 in. long, 6½ in. wide, and less than half an inch thick, which are cut from nickel sheets, are not sheets within the meaning of paragraph 185, relating to nickel in "sheets, &c."

The court decision affirms a ruling made by the Board of United States General Appraisers in which it was held that the nickel anodes cut from nickel sheets and used in nickel plating are properly dutiable as manufactures of nickel under paragraph 133 of the tariff, at the rate of 45 per cent. ad valorem. The anodes which are the subject of the litigation are made capable of practical use by the drilling of holes in order that they may be suspended in the bath for the plating operation. Although both the Board and the Circuit Court have found against the contention of Boker & Co., it is probable that the issue will be carried to the Appellate tribunal.

#### Coverings of Goods.

The status of so-called "unusual" coverings in their relation to the tariff law has been defined by the United States Circuit Court of Appeals at New York. The importers, Park & Tilford, questioned the intent of Section 19 of the Customs Administrative Act, which prescribes that the dutiable value of goods subject to an ad valorem duty shall include the cost of their coverings, and that when the coverings are unusual they shall be assessed with "additional duty at the rate to which they would be subject if separately imported." The Court, in a decision by Judge Lacombe, coincided in by Judges Wallace and Townsend, holds that the section does not mean that the additional duty is in lieu of the duty which would accrue on unusual coverings by including their cost in the dutiable value of their contents, but that such coverings are liable to the duty in both forms. This interpretation of the section is directly in conflict with the findings of the lower tribunals, the Circuit Court and the Board of Appraisers.

#### Whetstone Blocks.

The Treasury Department has given notice that it will accept as final the ruling of the Circuit Court at New York in the customs protest case of Charles A. Johnson & Co. regarding the classification of whetstone blocks. The articles are used by calico printers for sharpening instruments and grinding the edges of rollers. The Government exacted duty on the stones at the rate of 20 per cent. as nonenumerated manufactured articles, whereas the importers claimed free entry under the provision for crude minerals not advanced in value or condition. This latter contention the Circuit Court sustained.

### Labor Notes.

The American Sheet & Tin Plate Company, Pittsburgh, announces an advance of 2 per cent. in wages to all hot mill tonnage employees in tin mills, effective January 1. Although flat wage scales are signed with its nonunion sheet and tin plate workers, the company has decided to grant these employees an advance in wages on a sliding basis, as justified by the present selling prices of tin plate and sheets. It is possible that sheet mill tonnage men will receive an advance of 2.6 per cent. about March 1, dependent on the average selling price at that time. The number of employees affected will be about 7000 tin mill and 6000 sheet mill men.

The report current in the early months of 1906 is again circulated from union sources, that the International Association of Machinists will make a general demand throughout the United States in May for an eight-hour day.

A strike of machinists in the Pittsburgh District, which will affect between 8000 and 10,000 men, will likely be declared by officials of the International Association of Machinists, unless the manufacturers accede to the demands of the organization by May 1. During February the district machinists affiliated with the association will take a referendum vote on the following questions:

Shall we, the union machinists of the Pittsburgh District, demand a wage rate of more than 40 cents an hour?

Shall we demand a 10 per cent. increase for all union machinists who are earning 40 cents an hour or more?

Shall we demand an increase of 10 per cent. in the wages of union machinists doing specialized or semiskilled work?

Shall we demand a week of 50 hours' labor; that is, nine hours every day except Saturday, and five hours on Saturday?

Shall we strike in order to secure the foregoing demands, in case no agreement is reached with the machinery employing companies?

A new organization, the Metal Trades Council, of Pittsburgh, has been formed, to include representatives of unions of the machinists, patternmakers, boiler-makers, blacksmiths, molders, brass workers, inside electrical workers, stationary engineers and firemen, and other affiliated trades. Similar organizations are said to have been found successful in San Francisco, St. Louis, Chicago, St. Paul and Minneapolis.

In the courts at Pittsburgh the Baird Machinery Company has filed a bill in equity asking for the appointment of a receiver for the Fischer Foundry & Machine Company, and the court named the Real Estate Trust Company. The plaintiff company alleges the Fischer Company is in financial difficulties and that unless it is placed in a receiver's hands suits may be entered which would result in the assets being dissipated to the injury of the stockholders and creditors. The assets of the company are given as \$339,000 and the liabilities \$238,000. The company is capitalized at \$300,000 and its plant is located at Ford City, Pa.

The Lackawanna Steel Company's operations in two mills at South Buffalo, N. Y., were interrupted for a day or two this week by a flood from Lake Erie, caused by phenomenally high winds, a velocity of 84 miles an hour being maintained for several hours. The water was driven into the yards of the steel plant to a depth of 7 ft.

No. 3 Furnace of the Thomas Iron Company, at Hokenau, Pa., produced 1435 tons of foundry iron in one week of the present month. This is believed to be the largest output for one week of any furnace in the Lehigh Valley.

A Marion, Ohio, dispatch says that the Marion Steam Shovel Company has announced that \$50,000 will be distributed among the employees of the company on July 10, 1907, in recognition of faithful service.



### The Efficiency of the Patent Office.

The present good condition of the work of the Patent Office would seem to justify the publishing of the facts, in view of recent criticisms. Chester A. Wood, a patent lawyer, who has been for many years chief counsel in the office of Francis H. Richards, 9 to 15 Murray street, New York, and who is in a position to know how the present improvement was brought about, states that the entire credit for this improvement is due to the officials of the Patent Office. He believes that the Commissioner of Patents should have the credit to which he is justly entitled for the excellent condition of the work, which in this patent lawyer's experience of some 20 years has never before existed in the Patent Office, considering the average daily number of patent applications filed.

For some months the present Commissioner of Patents had been endeavoring to work out a method for facilitating the work of the office and bringing it up to date, and on September 19 he appointed a committee, composed of a number of the principal examiners of the office, including Dr. John J. Darby, Ballard Morris, L. W. Maxson and several others, to consider and suggest a plan to better the condition of the work of the office. This committee formulated a plan and it was immediately put into operation by the commissioner. As the result of the appointment of this committee, of the adoption of the plan suggested by it, of the very able co-operation of the examining corps with the committee and with the commissioner, and of the manner in which the commissioner has kept in touch with not merely the work of the divisions of the office, but with the work of each examiner, the work of the Patent Office has been brought up in such manner that instead of waiting, after an application for a patent was filed, from 5 to 11 months for official action thereon, as was formerly the case, such official action is made in nearly all the divisions of the office within one to three weeks, and at the outside within four to five weeks, and the actions are in every way what they should be. For instance, a case filed in one division on April 24, 1905, received action nearly nine months later, or on January 9, 1906. Recently a case filed in this same division on December 10, 1906, received action on January 8, 1907, about four weeks later, instead of nine months.

The present commissioner has personally worked out a scheme whereby he is not merely in touch with the condition of the work in each division of the examining corps, but is acquainted with the standing of each examiner's desk in the office, as to the number of cases on his desk awaiting action, the number acted upon during the current week and the number remaining unacted upon during such week; and when it is remembered that there are 39 divisions, with approximately 6 examining desks in each division, or a total of 234, each having weekly from a half dozen to many dozens of cases on it, some divisions having many hundreds of cases awaiting action, some appreciation can be had of the vast amount of work involved in perfecting such a scheme and in adopting and carrying out any plan which would bring and keep the office up to date in its work.

The weekly number of applications being filed is, however, on the increase and not on the decrease, and Congress can very materially assist in keeping up this excellent condition of the work by giving its most careful consideration to and passing the bills now before it, having the approval of the Patent Bar Association. The number of the examining corps in the Patent Office should be yearly increased and the salaries of the examining corps, as well as of those officials who have a quasi-judicial position, should be materially increased, to the end that experienced men may be retained in these most important positions. More pay from the outside is too frequently severing the connections of these men with the office, and obviously their places must be filled by inexperienced and untrained men. This alone is believed to be one of the material factors in delaying the work of the office and causing it at times to fall behind.

It is to the interest of inventors that these measures should be passed. As was stated in a report of a special

committee of the Patent Bar Association of Washington, under date of November 1, 1906: "The inventors of the United States are not asking any favors. In the fiscal year ending June 30, 1906, they put into the United States Treasury a profit or surplus of receipts over expenditures of the Patent Office amounting to \$270,148, and since 1837 there has been covered into the United States Treasury over \$6,000,000 derived from the same source."

### Increasing Costs of British Iron Making.

The advancing costs of making pig iron are now being emphasized by British trade journals. Market reports of January 10 say that the phenomenal advance in coke is exciting comment. Export demand has been such as to make it difficult for British consumers to get adequate supplies. Recent sales were made at 25s., or over \$6 a ton, delivered at Cleveland furnaces, an advance of 2s. 6d. since the holidays, and of 6s. since December 1. These prices correspond to 75s for Cleveland pig iron, whereas it is only bringing 60s. 6d. The average price realized by Cleveland ironmasters for No. 3 Cleveland pig iron delivered in the last quarter of 1906 was 53s. 4.46d. per ton, or 2s. 9.04d. more than in the previous quarter. This gives the blast furnace workers an advance of 3¼ per cent. in wages. The average price and the wages are now the highest since 1900. Railroad freights on iron making materials, which are based upon the average price for Cleveland No. 3, have been raised 3 per cent. The average quoted price for No. 3 Cleveland G.M.B. pig iron for the last quarter of 1906 was 57s. 6d.; in December alone it was 62s. 11d. The average quoted price for 1906 was 53s. 5d. per ton, but the average on deliveries was 51s. 3.83d., as compared with 46s. 6.37d. in 1905 and 42s. 10d. in 1904.

The production of pig iron in the Cleveland District in 1906 is estimated at 3,600,000 tons, as compared with 3,485,762 tons in 1905. The stocks of iron in public stores in the Cleveland District at the close of 1906 were 538,154 tons, as against 649,290 tons at the close of 1905. The forty-fourth annual report of C. E. Muller & Co., Ltd., Middlesbrough, Eng., which gives the above statistics, also estimates the production of Cleveland iron ore in 1906 at 6,250,000 tons, as against 5,934,283 tons in 1905. The imports of iron ore into Great Britain last year were 7,823,086 tons, as against 7,344,786 tons in 1905 and 6,100,756 tons in 1904. The imports from Spain in the three years were respectively 5,949,361 tons, 5,764,143 tons and 4,648,335 tons. The exports of Swedish magnetic ores to Great Britain and Belgium were 782,553 tons in 1906, and to Germany 2,898,236 tons; making a total of 3,680,789 tons, against 3,245,380 tons in 1905. The imports of foreign ores into the northeast ports of England have been growing in recent years. They were 2,939,265 tons in 1906, 2,823,756 tons in 1905, 2,336,164 tons in 1904 and 2,185,997 tons in 1903.

**The Duplex Process at Pueblo.**—The Colorado Fuel & Iron Company has employed the duplex process for some time at its open hearth plant at Pueblo, Colo. The metal is given a preliminary blow in one of the Bessemer converters and is then conveyed in ladles to a storage tank, from which it is drawn as required. About 50 per cent. of scrap is used in the open hearth practice at Pueblo and this is melted in the furnace before the pouring in of the hot metal. Additional open hearth furnaces are now under construction, and the company is pushing to completion its Furnace F, in view of the need of additional pig iron. The construction of this furnace was begun in 1902, but work was suspended.

In one day recently the mills of the Youngstown Sheet & Tube Company, Youngstown, Ohio, turned out 686 tons of finished pipe, being the largest output for any one day in the history of this company.

The Hartley-Rose Belting Company will on April 1 remove its office and storeroom from 634 Smithfield street to 425-427 First avenue, Pittsburgh.

## The Machinery Trade.

New York, January 23, 1907.

Considerable comment is heard in the trade on the continued high prices of raw material, particularly copper, which has advanced to a point that has caused not a little disturbance in prices of heavy motor driven machines, electrical machinery in general and brass goods. It is feared that a further increase in prices of raw material will check consumption to a considerable degree; in fact, it is said in many quarters that large consumers will not do much buying at the present high quotations. This is borne out to some extent by the few large deals for machinery that have been reported within the past few weeks and the absence of extensive machinery inquiries, especially from the railroads. So far the machine tool trade in this section has not been effected very much, though some houses report a more quiet tone to the market. The great activity that prevailed some time ago is not so much in evidence, and trade has apparently settled down to a more normal condition. Business continues very good, however, and machinery houses are receiving a large volume of both orders and inquiries from scattered sources. In certain lines the demand is especially heavy. The Chicago Pneumatic Tool Company did a larger business in its air compressor department in the first 10 days of this month than it did in the whole month of January of last year. Deliveries on new tools have not eased up, but second-hand machinery is said to be more in evidence, and is being offered in larger quantities.

Prices have again come to the front as a disturbing element, quotations on some classes of equipment being irregular and unobtainable, except for a short period of time. This state of uncertainty is due to copper fluctuations, and applies more particularly to electrical machinery. In the case of large motors manufacturers of heavy motor driven machines cannot get quotations for any length of time. Seamless brass tubes and other brass goods have advanced in price 1 cent or more a pound, and prices of steam specialties of brass are unsettled. Notices of another 5 per cent. advance in prices on some classes of machine tools have been received, and it is thought that it will be extended so as to cover the entire line.

The activity in mining operations has brought an increased demand for mining machinery, and the manufacturers in that line are rushed with work. Because of the large amount of talk that is made over some mining operations, especially where stocks are offered for sale, it is hard for the manufacturers to judge the proportion of orders that will result from inquiries put before them, because so many of them are fakes. Consequently they are often not in a position to fill the orders that come from reliable companies as quickly as they might, because of being swamped with business unawares.

From all indications the demand for sugar making machinery for Cuba has fallen off to some extent because of the political unrest there, and people in this country who have been doing business with Cuban exporters have been awaiting with interest the outcome of the elections there this spring. A prominent exporter who does business in that line is authority for the statement that a good many Cuban and American capitalists who have money invested in the island are holding off orders for machinery equipment. Fortunately the present excellent business conditions in this country overcome any effect this might have on the machinery trade in general, but those who are depending on export to that country for their principal business returns are feeling the dearth of orders. There are inquiries enough on hand, but none of the would-be purchasers seem to show a disposition to buy. It is thought that the developments of the next two or three months will show the trend of popular feeling on the island, however, and it is hoped by the exporters that something like a boom in the way of orders will develop.

### Proposed Southern Projects.

If plans which Joseph H. Hoadley, president of the Alabama Consolidated Coal & Iron Company, and some of his financial associates have under way are carried out there will shortly be begun the erection of locomotive works to cost \$3,000,000 at Gate City, a suburb of Birmingham, Ala., besides the construction of an iron plant to duplicate the one now owned by the Alabama Consolidated Coal & Iron Company at Gadsden, to be located at Lewiston, Ala., another suburb of Birmingham. Mr. Hoadley, in an address before the Commercial Club of Birmingham last week, promised that the two projects would be carried out. He stated that arrangements for the construction of the locomotive plant were under way and the capital had been secured, and he added that he had recommended to the Alabama Consolidated Coal & Iron Company the erection

of the iron plant, and to the same financial interests he had brought attention, he declared, to the profits to be accrued from an ice plant in the vicinity of Birmingham, with a daily output of 250 tons. The total amount of money involved in the proposed improvements, Mr. Hoadley said, was \$5,000,000, and he declared that he had every faith in the plans being carried out. If these projects are carried through as arranged the machinery trade will be greatly benefited. No machinery has been purchased as yet, as the plans are, it is understood, arranged only in a preliminary way. Just who the interests are connected with the scheme to build the locomotive plant in the vicinity of Birmingham Mr. Hoadley did not state, but it is thought that some of his present financial associates are interested in the plan. Mr. Hoadley, who has offices at 74 Broadway, is in the South at present, but is expected to return some time next week.

The Standard Steel Car Company, Pittsburgh, has finally decided to build a steel car wheel plant at Butler, Pa. The company has been considering a number of sites for the proposed plant, and it is understood that the one at Butler has been selected. It will be in a measure an experimental plant, it is understood, and the company has arranged for considerable ground to allow for extensions in the future. The plans have only been arranged in a preliminary way as yet, but later on the trade will probably hear of some requirements.

Iron and woodworking machinery is required by the Kalla Mfg. Company, 156 Fifth avenue, New York, which recently incorporated with a capital stock of \$50,000, and is to erect a plant at St. George, N. J., for the manufacture of Kalla's combination carpenters' plane and other tools for mechanical use.

The sales of the Thaw pneumatic tools and appliances during 1906 showed an increase of 50 per cent. over the previous year, and the Independent Pneumatic Tool Company, Chicago, is now several months behind in deliveries. As its manufacturing facilities are inadequate to meet the requirements of the increasing demand for its products the company has purchased a four-story brick building adjoining the plant at Aurora, Ill., which will give it approximately 100,000 sq. ft. of additional floor space, in which will be installed at the earliest possible date about \$65,000 worth of new machinery of the most modern type. By the acquisition of the buildings and additional machinery the company expects to double its output this year. A. B. Holmes, who was secretary, has also been elected treasurer, succeeding C. E. Erickson in the latter position.

The Warren Burnham Company, with main offices in the Hanover Bank Building, 5 Nassau street, New York, which has as affiliated companies the Fordwick Company, which was referred to last week in these columns as making extensions to its cement plant, and the Virginia Portland Cement Company, has acquired control of the Morgan Cement Works, located at Longue Pointe, Montreal. The controlling corporation and its affiliated interests propose developing the property of the Morgan Cement Works, and ground has been broken for a plant at Montreal which will have an initial capacity of 600,000 barrels a year. The plans include, however, the ultimate enlargement of the plant to 1,200,000 barrels a year, and it is expected that the enlargements will be proceeded with as soon as the improvements now under way are concluded. It is understood that Canadian capital is interested in the development of the cement properties, and a strong combination has been formed, it is said, for acquiring and controlling cement interests both in this country and in Canada. This, of course, will necessitate the purchase of large amounts of machinery necessary, and it is understood that already some purchases have been made along that line in this country. American manufacturers are very likely to hear of more inquiries in that line. W. S. Barstow & Co., 56 Pine street, New York, are the engineers on the Fordwick plant improvements, which provide for the erection of an 800,000 barrel plant, to include the installation of about 2500 hp. of electric motors.

The Canada Steel Nut & Bolt Company, capitalized at \$1,000,000, has purchased the plant of the Gerner Ice Cream Freezer Mfg. Company, at the North End, Niagara Falls, N. Y., and will immediately occupy, enlarge and equip the plant for the manufacture of nuts, bolts, washers, &c., by special automatic machinery, the patents for which it controls; and will commence operations with a large working force. The same company has also bought the old plant of the Ramapo Iron & Steel Company on the Canadian side of the river at the Falls, and will likewise equip that plant for immediate operation. Having plants on each side of the border the company will be enabled to avoid all tariff duties. The purchases were made by J. Pleyter of Boston, Mass., representing the Canada Steel Nut & Bolt Company and one of its principal stockholders. Economical production, on account of proximity to Niagara Falls power and competitive transportation facilities, determined the location of the plants.

The Trussed Concrete Steel Company, Detroit, Mich., has purchased 5½ acres of land at Walkersville, Ont., where it will erect a branch plant to supply the growing demand for the Kahn trussed bar in Canada.



**Business Changes.**

There is an indication that the machinery trade will continue to center in the vicinity of Dey, Cortlandt and Liberty streets, from the fact that a number of machinery houses that have lost their office homes through the tearing down of buildings on those streets to make way for the Hudson Company terminal have already taken offices in the West Street Building, 190 West street, and with other companies to be located there will be quite a machinery colony in that building. Among those who have secured space in the structure are the Wickes Brothers, Standard Railway Equipment Company, M. H. Treadwell & Co., Quincy, Manchester, Sargent Company, A. D. Granger Company, Thomas W. Pangborn Company, McClave, Rimmer & Co., National Railways Materials Company, Scranton Bolt & Nut Company, Bird Archer Company, Goubert Mfg. Company, Pierce Well Engineering & Supply Company, American Wood Working Machinery Company, Pelton Water Wheel Company, Neptune Meter Company and Rossiter, McGovern & Co.

The Otto Gas Engine Works, Philadelphia, Pa., has taken offices at 138 Liberty street, New York, on the ground floor, formerly occupied by the Chapman Ball Bearing Company.

D. N. Wardell, formerly one of the salesmen of Manning, Maxwell & Moore, has accepted a position as salesman with the Frevert Machinery Company, 18 Dey street, New York. Mr. Wardell will cover New York and New Jersey, devoting particular attention to the Metropolitan District.

**Cleveland Machinery Market.**

CLEVELAND, OHIO, January 22, 1907.

The heavy demand for machine tools continues. Local dealers have made many sales the past week, principally of small lots, and numerous inquiries are still coming in. Orders are being received from all branches of trade that use iron working machinery, but the greatest demand is probably for lathes. Delivery on machine tools has not improved, and, although the majority of purchasers want prompt shipment, few deliveries are promised within from four to eight months. Local dealers report that it is almost impossible to get milling machines. Automatic screw machines, large drill presses and radial drills are also very scarce. Some dealers announce a further advance of about 5 per cent. in the price of all machine tools. One local dealer says, however, that the only advance he has made the past week is in lathes.

The demand for second-hand machine tools continues strong and the supply is scarce. Dealers quickly pick up old tools that ordinarily they would not handle, knowing that they can dispose of them readily.

The C. O. Bartlett & Snow Company, machinery manufacturer, is planning to put up a structural building as an addition to its plant in the spring. The company is now in the market for a radial drill and keyseater, and will purchase punches and rollers for equipping the new building. The company reports a very heavy demand at present for ore dryers and for ore, coal and ash conveying machinery. It has so many orders for dryers that it has been forced to have some of them made outside of its plant. Orders for equipment for cement and plaster plants are unusually heavy. This company has recently received a number of good sized orders for ore handling and dryer machinery from gold mines in Mexico. Part of its plant is being operated night and day to keep up with the orders.

The National Acme Mfg. Company has increased its capital stock from \$750,000 to \$1,500,000. Although future plans have not yet been perfected, the company will probably build a large addition to its plant in order to increase the output of screws and screw machines. Because of the heavy rush of orders a large part of the plant is now being run 22 hours a day.

Owing to the fact that their business has outgrown the present capacity of their plant David Round & Son, manufacturers of chain hoists, will probably erect a new and up to date plant in the near future. They report a heavy demand for their hoists from machine shops and dealers. The firm is in the market for a slotting machine, either new or second hand.

The American Steel & Wire Company announces that it will shortly begin extensive improvements to its Salem, Ohio, plant, making it thoroughly up to date. New engines will be installed, and new electric power and light plants will be put in. The company desires to provide more economical engines than those in use at present, and the improvements will mean the addition of 25 per cent. to the power equipment of the plant.

The Woods Engineering Company, Alliance, Ohio, that was recently organized by F. C. Woods, W. C. Brown, and F. A. Hobbs, has erected a modern two-story brick plant for the manufacture of hydraulic wheel and trimming presses, accumulators, punches, shears, drop hammers and special ma-

chinery. The new plant has been in operation about 60 days, and the company reports that orders are coming in at a very satisfactory rate.

The Borden Company, Warren, Ohio, will move into a new plant in a few weeks. The building that the company occupies at present has been sold, and the local Board of Trade will erect a modern machine shop, about 100 x 200 ft., which the Borden Company will lease. The company manufactures hand and power pipe threading machinery.

The Reeves Brothers Company, Alliance, Ohio, is planning for the erection of another machine shop, that will almost double the capacity of its present plant. Orders have already been placed, it is said, for a part of the machine tools.

The Worden Tool Company, manufacturer of knives for woodworking machinery, has just completed a new factory building on Scranton road that will be occupied by the Worden Company and the Smeed Box Company. The building is of brick, 100 x 327 ft., part of which is two stories. The Worden Company has installed new boilers and 350-hp. engines for operating both plants. An electric lighting plant has also been put in. The Smeed Company is installing considerable new machinery in its plant. Clough & Witt, engineers and machinists, will move about March 1 into the building that has been occupied by the Worden Company. The building will be remodeled and Clough & Witt will increase their capacity by the change. They will probably purchase some new machinery for their new plant.

The Columbus, Ohio, Service Board will spend \$20,000 in improving the water works pumping station. The capacity of the plant will be increased by about 800 hp. and bids have been advertised for.

**New England Machinery Market.**

WORCESTER, MASS., January 22, 1907.

The advance in the price of engine lathes announced in *The Iron Age* last week has been followed by increases in other lines of machine tools, and it looks as if the example would be followed in a very general way, though it may not be universal at present. The new lathe prices will go into effect immediately. Radials have been advanced about 5 per cent. Several of the builders of upright drills have announced a similar increase, and it is expected that others will follow immediately. The prices of certain shapers have gone up, but this is not yet general, nor is it expected by some of the builders of this class of tool.

The dealers are receiving more notices from builders of machine tools announcing the adoption of the new rule governing stock orders, that prices shall be those prevailing at date of sale to customer, or at date of shipment to dealer, if no sale has been made when delivery is ready. This subject has been discussed in detail in *The Iron Age*. It carries with it protection of the dealer in case where prices drop before sale is made or before delivery on the dealer's floor and even after tools have been placed in stock, and consequently no objection is made to the practice, which is regarded as essentially a fair one to all concerned. The effect is not so great as might be supposed at first thought, because few machines get as far as actual delivery at the store or warehouse of the dealer. Yet there have already been instances where prices have advanced between the date of the placing of a stock order and the sale of the machines to a customer.

The Curtis & Curtis Company, Bridgeport, Conn., manufacturer of pipe cutting and pipe threading machinery and the Forbes patent die stock, will largely increase its manufacturing capacity in the spring by the erection of a new building which will give 6000 sq. ft. of additional floor space.

The Builders' Specialty Company, Somerville, Mass., has been organized to manufacture steel specialties for use in the building trades. It is a Massachusetts corporation, with capital stock of \$30,000. Ralph W. Richards, 23 Wendall street, Cambridge, Mass., is president, Frederick F. Haskell treasurer and Benjamin F. Ham clerk.

The O. H. Jones Company, Hartford, Conn., manufacturer of plumbers' supplies, has purchased the equipment of the Adams Tool Company, East Hartford, and will occupy the Adams factory, intending to purchase the property later.

The Standard Bolt & Nut Company, P. O. Box 283, Pawtucket, R. I., which is to erect a new plant for the manufacture of cold punched nuts, machine bolts, set and cap screws, &c., at Valley Falls, R. I., will require the following tools: No. 2 upright shear, No. 3 upright shear, 7/8-in. header, 7/8-in. header, 1/2-in. header, No. 2 1/2 nut press, No. 2 chamfering press, No. 1 1/2 automatic nut trimmer, No. 1 1/2 nut presses, No. 1 nut presses, No. 1 shaper, four-spindle nut tapper, geared; threader, four spindles, for 1/2-in.; four-head nutting table, six-spindle threader, two spindles for 1/2 in., two for 3/8 in. and two for 1 in.; 3/8-in. iron straightener; two 1/2-in. Chapin headers; one engine lathe, 14 in. by 6 ft., compound rest and taper attachment; two lathes, 16 in. x 8 ft., plain rest; two drills, 23 in. and 20 in., second-hand;

planer, 30 x 30 in. by 8 ft.; universal milling machine, No. 1½ or No. 2; punch and die grinder; oil extractor; tool grinder, 1½-in. spindle, 20-in. wheel. The company would also like to get in touch with manufacturers of oil engines for power. The works at Valley Falls will be 40 x 112 ft., with wing 40 x 72 ft. Albert H. Humes is the president and Willis E. Blount, treasurer.

The Page-Storms Drop Forging Company, Springfield, Mass., manufacturer of wrenches and drop forgings, is planning the erection of new works, which will be located in Chicopee, Mass., providing the arrangements can be made to make accessible a tract of land upon which an option has been secured, and there seems to be little doubt that this can be accomplished. While work on the new buildings will not begin immediately, yet the company states that it will place its orders for new equipment as soon as a definite decision is arrived at concerning the site, in order that deliveries may be had when the plant is ready for occupancy. The requirements will be large, for manufacturing facilities will be greatly increased as compared to those of the present works, though the latter are by no means small. At present 26 drop hammers are running, and it is probable that 10 more will be required at the start off. New trimming presses, both hot and cold, will be purchased, and some new machine tools, including a large lathe, probably milling machines and other machines. A bulldozer for bending I-beams will probably be purchased. The power plant will be new throughout and will have about 500 hp., enough to permit of later increases, though it is estimated that 350 hp. will be required at the beginning. The company is now looking into the matter of a gas engine and producer, though no decision to install this class of equipment has been reached. Electric generating equipment will be required, as it is proposed to operate the new plant on the unit system of electric drive, and lighting will be necessary. The plans call for a drop shop, 70 x 200 ft., and one story, and a main building 50 x 150 ft. and three stories, in which the machine shop will be located. When these buildings are occupied the company will be equipped to do heavier work, including I-beams and automobile crank shafts, as well as to manufacture the present line of wrenches, and automobile, machine and other forgings.

The Baird Machine Company, Oakville, Conn., manufacturer of special machinery, presses, tumbling barrels, &c., is planning to start work on another new addition to its works in the spring. At that time the company will want some new machinery equipment, but the requirements are not definitely decided as yet. An addition is already under construction, which will be completed in the early spring, when work on the other building will be started.

The Crompton & Knowles Loom Works, Worcester, Mass., has purchased the plant and business of the Crompton & Thayer Loom Works of that city and will consolidate it with its present large business, which itself is a consolidation of the Knowles Loom Works and Crompton Loom Works, accomplished some years ago. The Crompton & Thayer Loom Works is a young business, having been established about three years ago by a copartnership consisting of E. D. Thayer, Jr., George Crompton, Randolph Crompton and William B. Scofield. Over 300 men are employed. The news is of general interest in the trade because the Crompton & Thayer Works have been considerable buyers of machine tools, being pretty constantly in the market because of the rapid growth of the business. The works will be maintained by the new owners, it is given out.

The Humphrey Machine Company, Keene, N. H., has disposed of its machine and water wheel business to the new firm of J. C. Black & Co., who have established a new shop on Water street, Keene, for the purpose of carrying on these two branches of business. The Humphrey Machine Company is running its foundry only, but will continue to take orders for the Humphrey automatic clutches, shoe peg, clothes pin and other woodworking machinery, contracting for the machine work outside. Mr. Black was superintendent of the Humphrey Company's works for some time previous to the change and has had 25 years of experience with water wheel work.

The Massachusetts Fan Company, Waltham, Mass., manufacturer of fans, blowers, heaters, &c., has purchased 4½ acres of land on Howard street, Watertown, Mass., on which are several manufacturing buildings which will be remodeled for the purposes of the company. These buildings have approximately 40,000 sq. ft. of floor space, in which will be placed cranes and other equipment to make the plant thoroughly up to date for the manufacture of its product. The company is building a new brick boiler and engine house, 30 x 50 ft., in which will be placed both steam and gasoline engines of 60 hp. each. These engines will drive a 40-kw. generator to develop power for lighting and power purposes. Each line of shafting throughout the buildings will be driven by an individual electric motor. A 3-ton electric elevator will be installed. Orders have been placed for most of the equipment. A brick building 45 x 75 ft. will be remodeled for drafting and office purposes. The business has been located at Waltham for five years.

Burgess, Lang & Co., 50 State street, Boston, are to erect an eight-story manufacturing building, 60 x 300 ft., at

Lynn, Mass., to be used for the manufacture of shoes. The firm states that new equipment and machinery will be required, but the list is not yet ready for announcement. The firm financed the eight-story factory building erected by the Lynn Building Trust, at Lynn, last season.

The contemplated torpedo factory, which will probably be located at Newport, R. I., if anywhere, will be on a larger scale than was thought probable until something like an official announcement of the plan was made last week. The expenditure of \$500,000 for the purpose is considered necessary, and this does not include the land, because the site of present Government buildings will be used for the purpose. A large amount of expensive machine tool equipment would be necessary for such works, and as Newport comes within the territory of most of the Boston dealers, they would profit by the business.

The William H. Page Boiler Company, which now operates two plants for the manufacture of boilers and radiators, at Exeter, N. H., and Norwich, Conn., and has its New York offices in the Park Row Building, is preparing to erect a large plant at Meadville, Pa., at which both of the company's plants will be concentrated. The company has plans for a machine shop, 50 x 450 ft.; foundry, 90 x 250 ft., and a storehouse, 50 x 425 ft. All of the structures will be of brick and concrete. The buildings will be one story in height, except the machine shop, which will contain a gallery at one end which will be used as a tool room. The company will begin work as soon as possible, as the plans have already been prepared by Architect William B. Tubby, 81 Fulton street, New York. Natural gas will be used for power, and the company expects to install an engine of about 150 hp. The company will furnish its own boilers. A compressed air plant for operating air hoists and an electric plant to furnish power for a railroad to run through the buildings are included in the plans. The company expects to double the present combined producing capacity of both its existing plants, and consequently considerable in the way of machine tools, such as presses, lathes and other machinery used in the construction of radiators and steam and hot water boilers, will be purchased. The engineering details are in the hands of Alexander Don, secretary of the company, who can be addressed at Exeter and who in all probability will have full charge of the purchases.

## Philadelphia Machinery Market.

PHILADELPHIA, PA., January 22, 1907.

Trade in the past week in the local machinery market has been somewhat irregular. In some cases manufacturers and merchants have transacted a good volume of business, while others have received but a small amount. On the whole, however, the month's business to date has been generally satisfactory and equals about the average for January. Practically all of the business placed has been for small lots and single tools, mostly the latter. Several heavy tools have been sold, but the bulk of the business has been confined to those of the medium and lighter classes.

The recent advances in prices do not seem to have had any material effect on the volume of business placed, as buyers would in almost every instance be perfectly willing to pay not only full prices, but a premium, could they obtain any material concession on shipping dates. With practically every manufacturer booked well ahead and every purchaser keeping close after the manufacturer for the earliest possible delivery on tools purchased, the probability of working in any forward delivery is practically out of the question.

Delivery dates continue the most important feature of machine tool transactions, and could they be made in any reasonable degree of promptness there would be little difficulty in closing many of the propositions now under consideration, and would also open up a large volume of new business now indefinitely deferred. Manufacturers, however, are so fully occupied that there is but little chance for any improvement in the near future. The week to week business is practically sufficient to keep plants fully occupied under normal conditions, and it is therefore impossible for manufacturers to make any gains unless their capacities be increased, and this is practically impossible, owing to the inability to get the equipment for the same. Inquiries keep up comparatively well and cover equipment of every description, but as a rule do not develop into actual orders very rapidly, the tendency to shop around for delivery concessions delaying in many cases the actual placing of orders.

The foreign demand does not seem to be very active, as far as the local market is concerned. A few scattering inquiries are out, mostly for special tools, but little actual business has been done. Manufacturers in machinery specialties doing a regular export business report a greater number of orders, as well as an increase in the quantity ordered.

Manufacturers and merchants dealing in boilers and engines report only a fair demand. Several large power equipments are under consideration, but the business on the whole is not as active as the trade would like. The demand for



second-hand boilers and engines is also rather quiet, but not unusually so considering the season. Second-hand machine tools continue quite active. The demand is large and dealers are frequently unable to supply the wants of customers. Prices are very strong and buyers seem willing to pay almost any price for a tool they need if in good condition and it can be had for immediate delivery. Dealers are taking on stock wherever possible, but have frequently found themselves outbid by the direct user. Dealers' floors, however, are in pretty good shape and stocks are constantly being added to.

The foundry situation is unchanged. Better deliveries on gray iron castings are reported in some cases, while in others deliveries are just as hard as ever to get promptly. Steel casting plants are well booked ahead, and prompt deliveries are hard to obtain. The tonnage being offered in all classes of work is large, and foundries are in many cases delayed by the inability to get supplies or raw material, as well as a sufficient number of molders.

Wilfong Bros., iron workers, Fifty-second street and the Philadelphia, Baltimore & Washington Railroad, are having plans prepared for a storage shed 34 x 138 ft., with runways for traveling crane. They are also in the market for a 6 or 8 ton handpower traveling crane.

The Public Service Corporation, Camden, N. J., is preparing to double the capacity of its power plant at Trenton, N. J. While details are at present unobtainable, it is understood that purchases of the major portion of the equipment have already been made.

The Charles McCaull Company has been awarded the contract to build a large abattoir and packing house for the D. B. Martin Company at Thirtieth and Market streets, in this city, to be 152 x 220 ft., part two and part three stories high. As previously mentioned in these columns, extensive equipment of machinery peculiar to the business will be required, but just what this will cover has not yet been fully decided upon.

Wickes Brothers, Saginaw, Mich., boiler, engine and machinery merchants, who have for some time maintained offices and showrooms at 605-607 Arch street, in this city, have discontinued their showrooms, but will maintain a local branch office as they did prior to opening the showrooms. This for the time will be maintained at 605 Arch street, W. J. Linton continuing in charge as local manager.

The Standard Pressed Steel Company has received a large number of orders for pressed steel shaft hangers, both from foreign and domestic sources, while the demand for countershaft hangers for machine tool purposes has been equally good. Heavy shipments have been made to Australia, New Zealand and the European Continent, while an order for a large shipment to Peru has recently been booked. The domestic trade has been particularly good for hangers for immediate consumption, while some large lots for plant installations are being estimated on. Several new agencies, particularly in the northwestern section of the United States, have been established by this company, and every department of its plant is being operated at its full capacity, in order to meet the demand for its product.

The Philadelphia Roll & Machine Company has booked a number of orders for both sand and chilled rolls, one notable order just closed being for deliveries of 125 to 150 tons of rolls monthly during the year 1907 to one concern. A large amount of business in the way of housings for rolling mills, bedplates and special machinery parts of charcoal iron has also been taken, and a tonnage sufficient to keep the plant fully occupied for a long time ahead is on the company's books. A complete 18-in. cold roll mill has been shipped to the Riverside Metal Company, Riverside, N. J., this being the second complete mill furnished that company in the past ten months.

The Espen-Lucas Machine Works is busy in every department. The demand for all classes of cold saw cutting-off machines, as well as other special tools, has been large and a number of orders have been booked since the first of the year. Sales recently have been along the line of the heavier tools and include nearly all the company's types. Shipments recently comprise a number of cold saw cutting-off machines for structural steel works, steel foundries and for general work in various sections of the country. A large special crank shaft forming machine was shipped to a concern in the northern section of the State, and a heavy floor boring, milling and drilling machine was furnished a buyer in the Middle West.

In the courts at Pittsburgh last week, suit was brought by the Erie City Iron Works, Erie, Pa., to recover \$1704.50 from Neal Brothers, iron brokers of that city. The plaintiff claims that it contracted with Neal Brothers for 350 tons of pig iron at \$20 per ton, but that the iron was never delivered. Instead, the plaintiff was compelled to go into the market and buy iron at \$24.87 per ton, the market price, and now demands the amount it paid in excess of the contract price.

## Cincinnati Machinery Market.

CINCINNATI, OHIO, January 22, 1907.

The past year has been a phenomenal one with builders of machine tools and everything indicates a continuance for months to come. As a rule reports show that this class of manufacturers have done considerably more business during this period than at any time during their history. Expansion appears to be the order of the day, and preparations are being made to substantially increase the output of 1907 over what it was in 1906.

At present the flood proposition is the all absorbing topic of interest, as not only are the people compelled to leave their homes in the submerged district, but several of our large machine tool builders have suffered considerable delay and loss. Around Front and Pike streets are the Bollman, Wilson Foundry Company, Bickford Drill & Tool Company, Pothoff & Frey Iron Company and the McVaine & Spiegel Boiler Works. All these companies are more or less within flood conditions and it will be a week or so before they will be able to resume full operations. Near Third and Smith streets are the plants of the J. A. Fay & Egan Company, Lane & Bodley Company and the John H. McGowan Pump Company, who are perhaps in as bad a condition as the others. In the western part of the city, however, the trade suffered the worst, as in addition to the water that surrounded the plants of the Wm. Resor Stove Foundry Company and the Hill & Griffith Foundry Company fire was discovered in both buildings causing heavy loss.

The Cincinnati Machine Tool Company reports having completed the largest year in its history and is adding to every line of its tools. During the coming year the third floor of the plant will be utilized and considerable new equipment placed along the line of drilling machinery. This floor is now occupied by the Triumph Mfg. Company, builders of bakers' machinery. This company has secured a lot 100 x 375 ft. at the corner of Spring Grove avenue and Sassafras street, where a new building will be erected. Plans for this structure are now being made which will be hurried as much as possible as its business is growing rapidly. The company will undoubtedly purchase considerable in the way of new equipment for this plant.

The Factory Power Company has been incorporated with \$100,000 capital by B. B. Quillen, F. A. Geier, H. C. Hoefinghoff and J. C. Hobart. This company is to erect a central power plant for the Factory Colony Company at Oakley, where a tract of 100 acres has been secured. Contracts for the machinery have already been placed, and plans are about completed for the building, which will be 100 x 150 ft. This plant is to supply heat, light and power to the Cincinnati Milling Machine Company, Cincinnati Planer Company, Triumph Electric Company and Bickford Drill & Tool Company. The contract for the plant of the Cincinnati Planer Company will be let some time this week. The first building will be 140 x 200 ft. and will be operated as an addition to the present plant, which will not be moved for a couple of years. This addition will be equipped with new machinery throughout, most of which, it is said, has already been secured. This new equipment will include one 15-ton electric crane, lathes, radial drills, boring mills, milling machines, gear cutters, shapers, planers, &c. The plan is to double the capacity of the present plant, which will mean an expenditure of about \$100,000.

A deal has been closed in the west end of the city for the Victor Knecht Company, which is now located on Wade street, near Linn. The new foundry plant will be started early in the spring and will cost in the neighborhood of \$100,000.

The Reliance Engineering Company is planning for the erection of a large warehouse and factory for the Kroger Grocery & Baking Company at Des Moines street and Florence avenue. These plans include both building and machinery for the factory, which will include machinery for bakery, crackery, and departments for the manufacture of candy, &c. Both buildings will be fitted with the latest labor saving devices, such as conveyors, &c. Included in this work will be a refrigerator plant, a sprinkler system, and a power plant for light, heat, ventilation and power.

Plans are also under way for a power plant for the Frank Spice & Tea Company, together with a heating system for the new building. This power plant will probably have a capacity of about 100 kw. and will consist of duplicate direct connected units. Several motors will also be required.

At the annual meeting of the American Tool Works Company the following officers and directors were elected: Franklin Alter, president; J. B. Doan, vice-president and general manager; Henry Luers, secretary-treasurer; Robert Alter, H. H. Peck and A. B. Vorheis.

The annual meeting of the stockholders of the Brownell Company, Dayton, Ohio, was held in this city the past week. The following officers and directors were elected: A. H. Kemper, president; C. A. Hinsch and W. P. Smith, vice-presidents; Miss Hartmett, secretary and treasurer; W. B. Gebhart, J. H. Goyert, J. G. Gibson, Geo. Puchta, Bradford Shinkle, W. H. Stewart, J. M. Crawford and C. H. M. Atkins.

## Government Purchases.

WASHINGTON, D. C., January 22, 1907.

The Bureau of Supplies and Accounts, Navy Department, Washington, will receive bids until February 19, under schedule 384, for the following machine tools for the Washington Navy Yard: Turret lathes, shaper, grinders, drill presses and mill machine.

The following bids were opened January 15 for supplies for the navy yards:

Bidder 27, Chicago Pneumatic Tool Company, Chicago, Ill.; 51, Farnum Sand Blast Company, New York; 65, Handlan-Buck Mfg. Company, St. Louis, Mo.; 66, Henshaw, Bulkley & Co., San Francisco, Cal.; 111, Niles-Bement-Pond Company, New York; 125, Thomas W. Pangborn Company, New York; 128, Pneumatic Appliance Company, New York; 144, Sherman-Brown-Clements Company, New York; 170, Vermilye & Power, New York.

Class 3. One engine lathe, 36 in.—Bidder 66, \$3635, \$3765, \$3865 and \$4410; 111, \$3223.

Class 113. One sand blast—Bidder 27, \$300; 51, \$250; 65, \$285; 125, \$210 and \$310; 128, \$250; 144, \$238; 170, \$279.50.

The following bids were opened January 14, Circular No. 346, for a lathe for the Isthmian Canal Commission: Bidder 23, Fox Bros. & Co., New York; 28, Hamilton Machine Tool Company, Hamilton, Ohio; 40, Prentiss Tool & Supply Company, New York; 59, Manning, Maxwell & Moore, New York.

Class 18. One lathe—Bidder 23, \$1515, 145 days; 28, \$2060, 180 days; 40, \$2040, 90 days; 59, \$2457.24, 180 days.

The following bids were opened January 12, Circular No. 345, for two suction dredges for the Isthmian Canal Commission:

Item 1, one dredge delivered at La Boca; 2, one dredge delivered at Cristobal; 3, one dredge delivered at any Atlantic or Gulf port in the United States; 4, one dredge delivered at any Pacific port in the United States; 5, one or two suction dredges knocked down and packed for ocean shipment at any Atlantic, Gulf or Pacific port in the United States.

The Bay & River Dredging Company, San Francisco, Cal., item 1, \$189,000, 345 days; 4, \$169,000.

The Fore River Shipbuilding Company, Quincy, Mass., item 3, \$104,467, delivered at the company's works in 270 days; 5, two dredges, \$202,900, 285 days.

The Industrial Contract Company, Seattle, Wash., item 1, \$189,000, on own specifications \$149,000, 250 days; 4, \$163,000, on own specifications \$123,000, delivered at Seattle, Wash., in 200 days.

The Maryland Steel Company, Sparrow's Point, Md., item 2, \$129,000, 305 days; 3, \$121,000, delivered at Sparrow's Point in 305 days; 5, one dredge, \$103,950, 285 days, two dredges, \$202,500, 320 days.

The Newport News Shipbuilding Company, Newport News, Va., \$107,000 for one dredge and \$102,000 each for two; if knocked down and packed add \$7500.

Bids were opened January 7 as follows for one hoisting engine for the Middle Island, Mich., light station:

The Williamson Bros. Company, Philadelphia, Pa., \$585, accepted.

The Hyde Windlass Company, Bath, Me., \$850.

The following awards have been made for supplies for the navy yards, bids for which were opened January 2:

The Baldwin Locomotive Works, Philadelphia, class 16, one saddle tank locomotive, \$5200.

The Yale & Towne Mfg. Company, New York, class 31, two electric hoists, \$816; class 32, one electric hoist, \$400.

The Williamson Bros. Company, Philadelphia, Pa., class 41, two compound geared double drum reversible steam winches, \$2150.

Class 33, one refrigerating plant, will be purchased in open market.

Under bids opened December 18 for supplies for the navy yards the following awards have been made:

William L. Sargent, Fitchburg, Mass., class 31, one turret track turning and boring machine, \$4638.

The Independent Pneumatic Tool Company, Chicago, Ill., class 215, two nonreversible air drills, \$293.70.

Under bids opened December 11 for supplies for the navy yards class 142, two pneumatic riveting hammers and two pneumatic chipping hammers, has been awarded to the Chicago Pneumatic Tool Company, New York, and the Independent Pneumatic Tool Company, Chicago.

The new plant of the Pittsburgh Plate Glass Company at Crystal City, Mo., is about ready for operation. It is located about 28 miles from St. Louis. There are 15 concrete buildings, and 55,000 barrels of cement purchased from the United States Steel Corporation were used in their construction. The plant is one of the most complete in the world.

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# HARDWARE

THE possibilities of the electric street railroad for freight purposes are demonstrated in the announcement of the New York, New Haven & Hartford Railroad that Providence merchants and manufacturers whose establishments are not located directly upon the line of steam roads will be given the opportunity to have freight delivered directly at their doors in the cars in which it has been hauled to the city by the steam lines. The company has now acquired the electric street railroad system of the city of Providence and its suburbs. It already controlled all the steam lines radiating from the city. The gauge of the tracks of the two systems is the same. All that will be necessary will be to replace existing rails in the street with those having the deeper grooves necessary to take the wider flanges of the wheels of the rolling stock of the steam lines. Electric locomotives will then haul freight cars from the tracks of the steam lines through the streets to the doors or yards of shippers; and, of course, freight will be collected in the same manner, giving to the manufacturer or merchant as economical conveniences in shipping as those possessed by establishments having spur tracks from the steam railroads. This traffic will be carried on in the night, when the street lines have comparatively little passenger service, and consequently no inconvenience will be caused to the public.

The advantages of such a system of freight delivery and collection are apparent. The merchant will, of course, have to pay some extra charge for delivery, covering transportation over the street lines, and the manufacturer will doubtless have to put in a spur track from the street in order that cars may be delivered into his yard. But against these costs is that of carting goods to and from a freight depot, which, it is stated, is greater than the rates that the railroad will charge for delivery by its street line. The item of cartage is a very large one with some manufacturing establishments. The cartage of coal alone figures into a great expense in this respect as compared with the cost of dumping directly from cars into the boiler house. There are other heavy or bulky freights which count up into thousands of dollars annually in the item of cartage. Many manufacturers have abandoned old locations and erected entirely new plants at points where the opportunity for a spur track was available, for no other reason than the desire to save truck transportation between the works and the railroad. If the trolley lines of a city or town can be used for the passage of freight cars the advantages of a site beside a steam railroad are largely met. The introduction of the interchanging use of the two types of railroad should have a very important result in this respect, opening up advantageous locations for manufacturing purposes which otherwise would not be considered in comparison with sites on a steam railroad. Many existing locations will be retained which increasing business would in time render undesirable.

Providence and its suburbs for many miles in every directions are covered by a system of electric express. Bulky freight is not included, but everything that ordinarily is handled by an express company may be transported over the electric lines. This has proved to be a boon to city merchants and to customers in the country, and even the country merchants have found that while it

does them harm it also does them good in bringing the larger stocks of city stores within quick and convenient reach. Manufacturers as well as merchants have found the trolley express a most important auxiliary in the delivery of products. The freight system as outlined should, within the territorial limits of its application, take up the work where the trolley express leaves it and perfect a usefulness of street lines in a very important field.

The trade will be glad to learn from the interesting letter of our Washington correspondent given on another page that the House Post Office Committee has completed its hearings on the annual Post Office Appropriation bill and has so far prosecuted the preparation of the bill that there is every reason to believe that it will contain no provision for parcels post in any form, either as a permanency or as an experiment. It will be noted that two propositions in the interest of the catalogue houses are still under consideration, but it is thought that a majority of the members of the committee will oppose both of them on the ground that they are antagonistic to retail interests. Our Washington letter also refers to the significant action taken by the National Board of Trade, which has reversed itself on the subject of parcels post legislation and has by a two-thirds vote adopted resolutions opposing any legislation looking to the establishment of a parcels post in the United States.

## Condition of Trade.

A noticeable increase in the volume of business since the middle of the month is generally reported. Such comparisons as can readily be made would go to show that trade is rather better than at this time last year. Manufacturers are receiving heavy specifications against contracts, as is usual at this season, but new orders of considerable importance are steadily flowing in. This is taken as an encouraging sign, in view of the heavy buying which was done throughout the fall, and would tend to support the view that jobbers at least have not overbought. Further support for this opinion is found in the continued shortage of stock, with resulting difficulty in securing needed deliveries, which are still referred to as the most disturbing features of the situation. Careful inquiry fails to develop evidence that stocks of retail merchants are much above the normal, although they have undoubtedly been led to purchase freely, both by difficulty recently experienced in getting goods on short notice and by the promise of an exceptional spring trade. Prices on all finished products are distinctly firm at the level to which they have attained, and advances are still announced from time to time in different quarters of the market. Rather more seasonable weather conditions have prevailed during the past week, leading to increased activity in winter goods, which have been sluggish up to this time. A corresponding interruption in building operations would naturally follow.

### Chicago.

From the volume of trade coming in it is plain that the continued upward tendency of prices has not operated to diminish demand from the consuming trade. While no notable price changes are reported, those heretofore quoted are strongly held. The widespread storms of

rain and snow prevailing throughout the West for the past week will, if followed by further unfavorable weather, necessarily bring a halt in building operations using Hardware lines. A temporary lull in the present unprecedented demand might result from such conditions, but it would be of short duration, as the anticipation of spring activity will soon begin to be felt in all markets. A prominent jobber reports that this week's price change sheet is the largest that has been sent out in many months and that it consists almost altogether of advances, which, however, were but slight upon each article, yet in the aggregate may materially assist in boosting everything to a higher level.

### NOTES ON PRICES.

**Wire Nails.**—New business is being received by the mills in fair volume, but small in comparison with the specifications on contracts. Shipments are delayed partly by car shortage, and the mills are four weeks or more behind in deliveries, which it seems almost impossible to catch up with. Prices are firm. Quotations are as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads, to jobbers.....	\$2.00
Carload lots, to retail merchants.....	2.05

**New York.**—Requirements of retail merchants are naturally moderate at this season, especially as stormy weather has interfered with out of door building. While there are some cheap Nails still on the market, regular jobbers are not sacrificing their stocks, as mills are from four to six weeks behind in shipments, with little prospect of catching up in the near future. New York quotations are: To retailers, carloads, on dock, \$2.19; less than carloads, on dock, \$2.33; small lots, at store, \$2.30.

**Chicago.**—A fair amount of new orders is being booked, and specifications on old contracts continue to keep the mills busy in their shipping departments. Deliveries are still slow, but on the whole show some improvement. Prices are firmly maintained as follows: \$2.15 in car lots to jobbers, and \$2.20 in car lots to retailers, with an advance of 5 cents for less than car lots from mills.

**Pittsburgh.**—Specifications on contracts are being received by the mills in large volume, and shipments are heavy, but would be much larger were the mills able to secure a plentiful supply of cars. The car shortage is being severely felt and with unpleasant weather will undoubtedly get worse. The mills are from four weeks or longer behind in deliveries on which they are unable to catch up to any extent. The volume of new business in Wire Nails this month is much lighter than last month. The market is firm. Quotations are as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads, to jobbers.....	\$2.00
Carload lots, to retail merchants.....	2.05

**Cut Nails.**—Prices were reaffirmed last week at the meeting of the Cut Nail Association. It was provided, however, that an automatic advance in price, equal to any that might be made in the price of Wire Nails before the next meeting of the association, should take place. A fair amount of new business is being received by the mills, and they also have large contract orders, and are behind in deliveries. Export demand is exceptionally heavy. Stocks at mill and in jobbers' hands are reported light, especially on certain sizes. Quotations are as follows, f.o.b. Pittsburgh: Carload lots, to jobbers, \$2.05; less than carloads, to jobbers, \$2.10; less than carloads, to retailers, \$2.20. Iron Cut Nails at points west of Buffalo and Pittsburgh are held at 10 cents advance on Steel Cut Nails.

**New York.**—The demand for small lots from store is light. Jobbers' stocks are somewhat limited in assortments, as manufacturers are behind in shipments. Regular jobbers are holding to quotations, not being willing to part with stocks at lower prices, owing to the inability

of mills to make prompt shipments. Jobbers' quotations are on the basis of \$2.30 for small lots at store.

**Chicago.**—The demand for Cut Nails is unusually heavy for the season of the year. Doubtless recent storms, with their attendant floods, will have their effect upon the movement of goods of this class, but at most it will be temporary. Quotations are unchanged, and are as follows: Iron Cut Nails, car lots, to jobbers, \$2.30; to retailers, \$2.35; Steel, to jobbers, in car lots, \$2.20; to retailers, \$2.25.

**Pittsburgh.**—At the meeting of the Cut Nail Association, held in Philadelphia last week, present official prices were reaffirmed. The volume of new business is fairly large and the mills have heavy contracts on their books, on which they are considerably behind in deliveries. Stocks held by jobbers and by the mills are reported to be lighter than usual and on certain sizes are incomplete. Quotations are as follows, f.o.b. Pittsburgh: Carload lots, to jobbers, \$2.05; less than carloads, to jobbers, \$2.10; less than carloads, to retailers, \$2.20. Iron Cut Nails at points west of Buffalo and Pittsburgh are held at 10 cents advance on Steel Cut Nails.

**Barb Wire.**—Car shortage is interfering with prompt deliveries on contract orders, which jobbers are urging so as to have stocks to meet the spring demand. New business is comparatively light. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Gal.
Jobbers, carload lots.....	\$2.15	\$2.45
Retailers, carload lots.....	2.20	2.50
Retailers, less than carload lots.....	2.30	2.60

**Chicago.**—The urgent demand for specifications on old orders that is being pressed upon the mills is now met with somewhat improved delivery. Car shortage is still complained of, but some improvement in this respect is noted. Quotations: Jobbers, Chicago, car lots, Painted, \$2.30; Galvanized, \$2.60; to retailers, car lots, Painted, \$2.35; Galvanized, \$2.65; retailers, less than car lots, Painted, \$2.45; Galvanized, \$2.75; Staples, Bright, in car lots, \$2.25; Galvanized, \$2.55; car lots to retailers, 10 cents extra, with an additional 5 cents for less than car lots.

**Pittsburgh.**—The mills are being urged by the large trade to make shipments as promptly as possible, the jobbers desiring to have as large stocks on hand as possible to meet the expected heavy spring trade. New business is light, but owing to the car shortage the mills are not catching up on deliveries to any extent. The tone of the market is strong. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Gal.
Jobbers, carload lots.....	\$2.15	\$2.45
Retailers, carload lots.....	2.20	2.50
Retailers, less than carload lots.....	2.30	2.60

**Smooth Fence Wire.**—Conditions regarding deliveries are much the same as in Nails and other Wires. Car shortage keeps mills behind on contract deliveries. New business is light. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads .....	\$1.85
Retailers, carloads .....	1.90

The foregoing prices are for base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances, as follows:

	6 to 9	10	11	12	12½	13	14	15	16
Annealed.....Base.	\$0.05	.10	.15	.25	.35	.45	.55		
Galvanized....	\$0.30	.35	.40	.45	.55	.65	1.05	1.15	

**Chicago.**—Conditions governing the movement of Smooth Wire, both as to demand and delivery, are about the same as in other wires. Quotations are unchanged, as follows: In car lots, to jobbers, \$2, f.o.b. Chicago, and to retailers, \$2.05.

**Pittsburgh.**—Specifications on contracts continue heavy, but owing to the car shortage the mills are still very much behind in deliveries. New business is light, as large consumers contracted some time ago for their requirements for a considerable period ahead. Quotations



are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads .....	\$1.85
Retailers, carloads .....	1.90

The foregoing prices are for base numbers, 6 to 9.

**Binder Twine.**—The International Harvester Company recently announced the following schedule of prices for small lots of Binder Twine:

	Cents per pound.
Sisal .....	9%
Standard .....	9%
Manila (600 ft.) .....	12½
Pure Manila .....	14

On lots of 10,000 lb., ½ cent less; on carload lots, ¼ cent less. The schedule contemplates Chicago delivery, ¼ cent being added for Minneapolis or Kansas City delivery. The prices announced on March 1, 1906, by the same company placed Sisal or Standard at 10 cents, 600-ft. Manila at 12 cents and Pure Manila at 13 cents. The new prices are probably based on the average cost of Fiber purchases. According to reports quotations are made by other manufacturers as follows: Ludlow Mfg. Associates, Boston, Standard, carload lots, 9½ cents, f.o.b. Chicago; Peoria Cordage Company, Peoria, Ill., and Lindsay Bros., Milwaukee, selling agents for Plymouth Twine, Standard, same as the Harvester Company's schedule; St. Louis Cordage Company, St. Louis, Mo., Sisal and Standard, 9¼ cents, less ¼ cent for carloads, f.o.b. St. Louis. The Harvester Company has not yet announced prices on Flax Binder Twine.

**Shears and Tinnerns' Snips.**—Some manufacturers of Shears, Tinnerns' Snips, &c., are making moderate advances in their prices. Exceptional demand is reported for this class of goods.

**Jack and Safety Chain.**—Within the last few days there has been a quotable advance in prices on Jack and Safety Chain. The market may now be represented by the following discounts: Iron Jack Chain, 60 and 10 per cent.; Brass Jack Chain, 50 and 10 per cent.; Safety Chain, 60 and 10 per cent. Beyond these figures there are the usual concessions to the jobbing trade and on quantity orders.

**Wire Springs.**—Owing to the increased cost of raw material, manufacturers of Wire Springs are generally advancing their prices. The most notable changes have been made in hard drawn products, including furniture springs and the like.

**Stove Bolts.**—The tendency to firmness, for some time observed in quotations on Stove Bolts, to which attention has recently been given in these columns, is still a characteristic feature of the market. Stocks are said to be light, and considerable difficulty is experienced in securing needed deliveries. Some manufacturers are holding their product 5 to 10 per cent. above the lowest prevailing prices.

**Brass Cocks.**—Advances in the metal market are frequently reflected in quotations on Brass Cocks, which are generally being quoted only on specified orders and for shipments at the convenience of the factory. The market on Hardware grades may be represented in a general way by discounts of from 60 and 10 to 65 per cent., and on Compression Bibs, 55 and 10 to 60 per cent.

**Tacks.**—Scarcity of Tack Plate is referred to by manufacturers and their agents as the cause of marked firmness in quotations on Tacks. Indeed, prices are now as strong as at any time in the recent upward movement, and few if any manufacturers are in the market for contract orders. The demand for all grades of Tacks is said to be exceptionally large.

**Iron Planes.**—A revision in list prices on many numbers of Iron Block Planes has been made by concerted action of Sargent & Co., Union Mfg. Company, and Ohio Tool Company. The changes represent advances of from 10 to 20 cents per Plane. The discounts of these manufacturers remain the same.

**Coes Wrenches.**—No advance has been made in the prices of the Knife Handle Wrenches made by Coes Wrench Company, Worcester, Mass., although higher prices have been announced by manufacturers of

Wrenches designed to compete with this line, as referred to in a recent issue. In this connection it may be stated that Knife Handle as applied to Wrenches is a registered trademark of the Coes Company.

**Expansive Bits.**—Several manufacturers of Clark's Pattern Expansive Bits have revised their prices, quotations showing an advance of from 15 to 20 per cent.

**Steel Balls.**—Revisions of prices have been made by several manufacturers of Steel Balls and Ball and Roller Bearings, advances ranging from 10 to 20 per cent.

**Bicycle Wrenches.**—Moderate advances are shown in the quotations of several manufacturers of Bicycle Wrenches.

**Cutaway Harrow Company.**—A recent price sheet issued by Cutaway Harrow Company, Higganum, Conn., shows several slight advances in its line. Notable changes occur in the company's A-5 and X-10 Double Action Harrows.

**Caldwell Mfg. Company.**—Caldwell Mfg. Company, Rochester, N. Y., announces that owing to the increased cost of labor and raw material it has withdrawn all prices on Sash Balances and Aluminum Bronze Sash Ribbon and instituted a slight advance. Prices on Galvanized Steel Sash Ribbon remain the same.

**American Fork & Hoe Company.**—It is stated by American Fork & Hoe Company, Cleveland, Ohio, that although its new material and labor costs would justify advances, it is pursuing a conservative policy, and has made no change in price on its regular Steel goods line, including Hay and Manure Forks, Hoes, Rakes, &c.

**McNab & Harlin Mfg. Company.**—The announcement is made by the McNab & Harlin Mfg. Company, 50-56 John street, New York, that owing to the unsettled condition of the market and the many changes in its lines necessitated by the continued advance of copper and iron, its quotations are made for immediate acceptance only. The demand, moreover, for Valves, Cocks and Fittings is so unusual that large orders cannot be booked except for shipment at the convenience of the factory.

**Screws.**—At a meeting of the manufacturers of Screws, held in New York City to-day (Wednesday), the whole line of Screws was advanced in price five points. The regularly printed discounts on Flat Head Iron and Flat Head Brass Screws are now 87½ and 5 and 82½ and 5 per cent., respectively, instead of 87½ and 10 and 82½ and 10 per cent., as heretofore, subject to the usual extras.

**Lawn Mowers.**—Manufacturers of Lawn Mowers report that they have booked large orders for the coming season. Encouragement is also expressed at the growing tendency of the trade to push machines of the better grade, contracts showing a greater preponderance of high priced Mowers than ever before. At the same time there is no little complaint on the part of several producers that profits are too small as compared with other lines, and that with the present cost of raw material, prices on the cheaper machines are kept on an unremunerative basis as a result of sharp competition.

**Copper and Brass Materials.**—There has been a further general advance in products wholly or partly of Copper, as follows, viz: Copper Seamless Tubes on January 16 advanced 2 cents per pound to 33 cents base, and Brass Seamless Tubes 1 cent per pound to 27 cents base. On January 17 Sheet Copper 1 cent per pound to 30 cents base, January 18, Soldering Coppers, on lots of 300 lb. or more, 30 cents per lb. base, with ½ cent advance in lots of 100 to 300 lb., and 2 cents advance for less than 100 lb. January 21, Copper Wire in moderate quantities 32 cents per pound base, with a lower minimum price at mill for carloads; Copper Rivets and Burs, 33 1-3 per cent. discount; Copper Bottoms, pits and flats, 34 cents per pound base. On January 21 Brazen Brass Tubing became 30½ cents per pound base; Brass Rods, 24 cents per pound base; Brass Wire, 24 cents per pound base, and Sheet Brass 23¼ cents per pound base.

**Augers and Auger Bits.**—The various manufacturers of boring tools, such as Augers, Auger Bits, &c., on January 17 made advances which vary somewhat on the various kinds, but are said to approximate about 12½ per cent. increase, and are as follows, viz.: Auger Bits, Nut

Augers and Boring Machine Augers, 70 per cent. discount for moderate purchases; Ship Bits, Ship Augers and Car Bits, 40 and 10 per cent. discount; the above prices being subject to higher discounts in large quantities to the wholesale trade.

**Rope.**—Owing to the higher cost of Manila Fiber manufacturers have advanced the price of Pure Manila Rope  $\frac{1}{2}$  cent per pound. Demand is fairly good for the season, but not as active as it is expected to be as spring approaches. Quotations are as follows: Pure Manila, 13 to 13½ cents; B quality, 12 to 12½ cents; Pure Sisal, 9¼ cents; No. 2 quality, 7¼ to 8 cents; No. 1 Jute,  $\frac{1}{4}$  in. and up, 9 cents; No. 2 Jute, 8½ cents.

**Paris Green.**—Manufacturers of Paris Green have not announced prices thus far, on account of the uncertainty as to what the average cost of raw materials will be. Manufacturers of Vitriol will not sell a customer more than 25 barrels at one time, owing to the advancing tendency of the Copper market, which is changing from day to day. The Arsenic mines in Europe are snowed in, so no Arsenic is being taken out, and higher prices on this ingredient are anticipated. Prices on Green may not be announced before the middle of March, and they are then expected to be higher than they were last year.

**Window Glass.**—Reports indicate that demand is good, and that certain sizes are scarce. A shortage of one class of workmen, blowers, is said to be interfering with production in a number of factories, and this trouble is likely to increase with the starting of additional plants. A large amount of Glass is, however, being turned out by the different factories. Although a conference between the manufacturers' committee and representatives of the union workmen have been held, nothing definite is said to have been accomplished in settling the difficulty referred to last week in these columns. Quotations for carload lots are as follows: Single strength, 90 per cent; double strength, 90 and 5 per cent. discount from manufacturers' list. Local demand is light and jobbers' quotations, from jobbers' list October 1, 1903, are as follows: Greater New York, 90 and 10 per cent. discount for all sizes, single and double strength; outside of Greater New York, 90 and 5 for single and 90 and 10 per cent. discount for double strength Glass.

**Linseed Oil.**—Business is confined to jobbing lots, while crushers are mainly engaged on making deliveries on contract orders. The best price for contract orders appears to be on the basis of 39 cents for Our of Town Raw, as Seed remains at a high level and Cake proportionately low. New York quotations for jobbing lots are as follows, according to quantity: City Raw, 42 to 43 cents per gallon; Out of Town Raw, 41 to 42 cents per gallon. Boiled Oil is 1 cent per gallon over Raw.

**Spirits Turpentine.**—Freight congestion has been relieved, resulting in heavy receipts of Turpentine at Savannah. It is understood that owing to the general good weather the crop on the Turpentine farms has been practically cleaned up. Stocks are referred to as being light at Southern distributing points, with an intimation of possible higher prices. Local demand is restricted largely to small lots. New York quotations are as follows, according to quantity: Oil Barrels, 73 to 73½ cents; Machine Made Barrels, 73½ to 74 cents per gallon.

RALPH TEMPLETON, 97 Warren street, New York, has just been appointed direct representative of the Cincinnati Rubber Mfg. Company, Cincinnati, Ohio, Mr. Templeton having until recently been the Eastern manager, in New York, of the Whitman & Barnes Mfg. Company. The Cincinnati Rubber Mfg. Company was organized in April, 1905, taking over the entire Rubber business of the Whitman & Barnes Mfg. Company, together with the equipment, men and heads of departments of the Akron, Ohio, plant. The entire works are new and modern, the company manufacturing Mechanical Rubber Goods, Belting, Hose, Packing, Special Molded Articles, &c. The company makes a specialty of manufacturing to order for large manufacturers various goods of Rubber to meet their own special requirements, and it is especially strong

on Sheet Packings. S. D. Baldwin, treasurer and sales manager, formerly occupied a responsible position with the Whitman & Barnes Mfg. Company.

## Letters from the Trade.

*This department is for the description of approved methods of carrying on and extending business, and a cordial invitation is given to merchants to co-operate in the effort to make it suggestive and of practical use to the trade.*

### ALWAYS ROOM AT THE TOP.

FROM A HARDWARE MERCHANT IN NEW MEXICO: "Competition is the life of trade," is an old saying, but when the other fellow gets so far ahead that he can't be seen without opera glasses he has not much to fear from the man behind—or the glasses.

In a small town in New Mexico A worked for B. Finally A struck out for himself and eventually located one block from B. His business steadily grew and expanded until he ultimately secured almost all the land around B.

B finding himself out of the race, as it were, used to sit with Mrs. B under the wide portal and watch the rush going by through field glasses. This grew so exciting that he could barely wait upon a customer for a gallon of coal oil.

Motto: There is room at the top for the man with push; the man at the bottom is the one who is crowded.

### CASH DISCOUNT.

FROM AN EASTERN MANUFACTURER: It is a sad commentary that no matter what is brought up in any walk of life there are always those who want to break down the barriers and who want to take the proverbial ell if you give them an inch. It is an astounding fact that the cash discount offer is lost sight of entirely, and house after house, totally ignoring the rights of the seller, make laws unto themselves as to how to settle. It is a fact that a house we had a 10-day cash offer with settled the 10th of month following, which we would not allow, and, while disputation was going on as to the merits of their claim, they asked for the 20th of the following month settlement.

Now we have decided, if the meaning of cash discount offer cannot be lived up to, we will sooner or later be compelled to sell subject to no discount. Already some houses are adopting this, and the fault will lay entirely at the doors of those who cannot let well enough alone.

### HOLIDAY TRADE AND SIDE LINES.

FROM AN INDIANA MERCHANT.—During the Holidays we changed our window display often, which attracted a great deal of attention. We have also added to our regular line of Hardware China Ware, Cut Glass, Silverware, Toys, Dolls, Lamps, and 5 and 10 cent counters, which we find exceedingly satisfactory. We would say to our brother Hardware merchants that if they will add these lines they will get so busy during the month of December that they will have no time to think of catalogue houses. In fact we are thinking Shears & Sawbuck are doing a great deal of complaining on account of the business we are doing. We would caution the Hardware dealer not to be too conservative in adding certain new lines, as we feel they properly belong to the Hardware store.

"SCREEN DOOR FIXIN'S" is the title of an attractive booklet for the season of 1907, issued by Columbian Hardware Company, Cleveland, Ohio. In addition to a full description of the Columbian All Steel Screen Door Spring Hinge and other brands made by the company, there are listed 64 varied assortments of Screen Door Sets, including Hinges, Screws, Door Pulls and Hooks and Eyes. A feature of the booklet is that many sets are illustrated complete, showing the merchant or consumer exactly what they contain.



## TRADE WINNING METHODS.

*This department is for the description of approved methods of carrying on and extending business, and a cordial invitation is given to merchants to co-operate in the effort to make it suggestive and of practical use to the trade.*

### AN IMPOSING DISPLAY OF TOOLS.

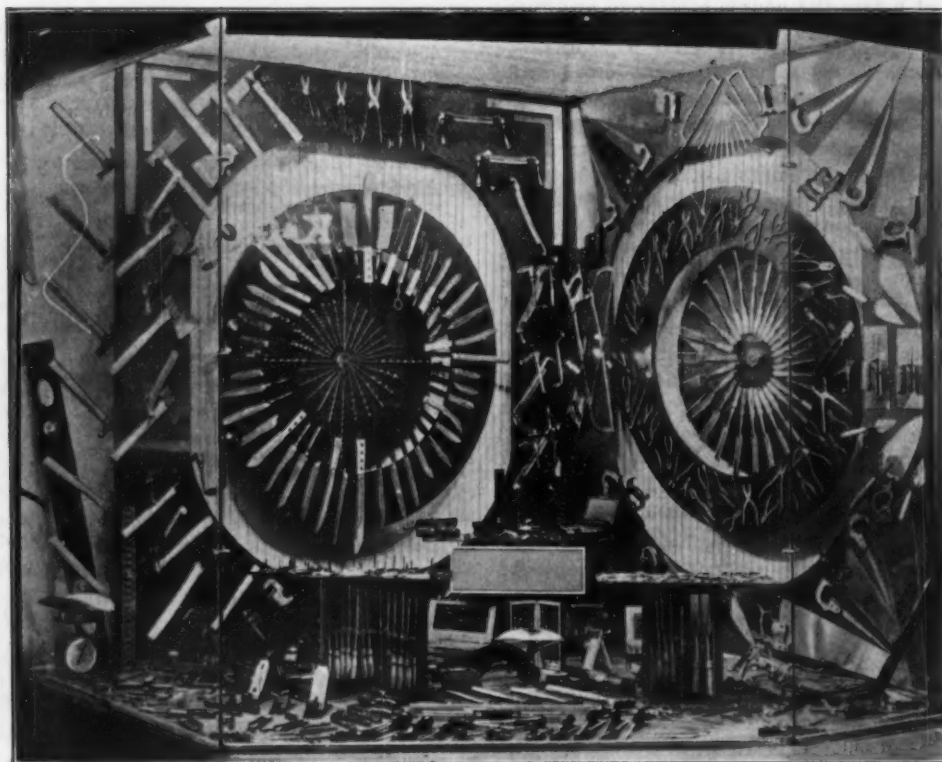
BY courtesy of Birmingham Arms & Cycle Company, Birmingham, Ala., we are enabled to reproduce herewith an effective window display of Tools, which it recently installed. The company states that it has been encouraged to make a feature of its store front by displays of merchants which have been illustrated and described in our columns, and it contributes this example of its own work in the hope of affording like interest and stimulation to other Hardwaremen.

The display, as will be seen from the cut, consisted entirely of Tools, including Mechanics', Masons', Carpenters' and Edge Tools of all kinds. Although the number

sirable for personal use and home comfort, and perhaps the most acceptable of all holiday gifts."

The "Christmas Herald," issued by T. H. Loyhed & Son, Faribault, Minn., contained a large and interesting representation of goods admirably answering the requirements of purchasers of useful holiday gifts. A special feature was made of Toys, the Loyhed stock of which was said to be the largest and most complete ever gathered in the city. Visitors to the store were reminded to ask for the firm's attractive calendar and calendar memorandum book, both of which were ready for distribution on December 15.

The Honeyman Hardware Company, Portland, Ore., distributed a daintily printed pamphlet entitled "A Booklet Telling of Suitable Articles for Christmas Gifts," this title, together with an exterior view of the store in holiday garb, appearing on the front cover. On the last page of the booklet was a recapitulation of holiday goods for men, for boys and for women and girls, with prices. Enclosed in the booklet was a folder entitled "What to



Tool Display of Birmingham Arms & Cycle Company.

shown was unusually large they were arranged in such an orderly and systematic way as to avoid the impression of crowding or confusion. The space included was  $8\frac{1}{2}$  ft. square and 8 ft. high. The design in the background consisted of three parts: Two circles and one large square reaching from floor to ceiling. All framework was made of 1-in. rough lumber and covered with red cotton flannel. The floor was finished in hard oil. As the window was installed the last of November and December business increased 40 per cent., the company naturally attributes a large part of the increase to the display.

### CHRISTMAS BOOKLETS.

BARD & CHENEY, Port Allegany, Pa., "The Store with the Red Front," issued a catalogue,  $9\frac{1}{2}$  by 12 in. in dimensions, in which selections from their lines of Silverware, Cutlery, Rifles, Skates, Sleds, Household specialties, &c., were featured. The catalogue had a striking red cover, and was copiously illustrated and fully priced. In an introductory the catalogue was referred to as containing suggestions as to "articles which are always de-

Give," which contained the list already referred to, together with space for memoranda for the convenience of the intending purchaser. The folder also presented a monthly calendar for 1907 and a list of the Portland fire alarm boxes.

The Christmas edition of "Austin's Dictionary of Economy," the store paper issued by E. M. Austin, Litchfield, Ill., was an interesting and attractive number. The attention of "December Bridal Couples" was called to the fact that during the past two years and a half Mr. Austin had furnished 237 housekeeping outfits to parties in Litchfield and surrounding towns, a list of these persons being given.

In connection with the Will County Farmers' Institute celebration, January 16-18, the Barrett Hardware Company, Joliet, Ill., issued an attractive booklet printed in two colors, in which attention was invited to the company's fine store and complete stock. Visitors were also reminded that the firm had arranged special conveniences for their service and comfort in the shape of a checkroom on the main floor, where wraps, umbrellas, buggy robes, whips, parcels, &c., might be left, and toilet rooms for both sexes in the basement.

## SPECIALTY LINES AND HOW TO HANDLE THEM.

BY S. M. S.

**A**N important factor, and one which no successful Hardware dealer can afford to overlook, is that which now disposes people as a whole to give their trade in a large measure to the store which shows the greatest variety of merchandise. In the large cities the big successes of to-day are the department stores, and probably in your own town supremacy among business men has passed, or is passing, from the one line man to the retailer of many things. Even the so-called one line stores of to-day that are still fairly successful in a large way you will find are making a special feature of the variety in their offerings in a bargain department.

### Bicycles as an Example.

Let us take one profitable specialty line as an example. If that vast army of Hardware dealers who do not yet handle Bicycles and Bicycle Sundries were able to see the wheelman in his true light, as an often easy-to-be-won customer, they would simply rush to take up and occupy a most promising specialty field now practically "fallow."

Generally speaking your wheelman is a thoroughly self-indulgent man; he wants the best of everything to ride, wear or use for his favorite sport, and he is, moreover, apt to know a good thing when he sees it, glad to have it shown to him, and generally both able and willing to buy and pay for it.

Now, then, if you are handling a wheel tell him why you believe it to be the best, for of course you do. If it is a good mount—and that's the only kind you want to handle—tell of its material and make-up, of its balance, fine action, and consequently easy running and riding qualities—yes, tell all about it, just as you would to a fellow rider on the same road to town with you.

### It Is the Come Again Trade

which alone will insure the permanency of any business success, and to get a constantly repeat business your customers must be made to have faith in the truth of all your statements about goods. True confidence such as this is a thing of slow growth and careful nursing.

The various specialty lines which you take up can be made good reasons why people should come to your store. Continue to sell Hardware staples, of course, but quit pushing them on the score of price alone. Back of all your regular Hardware staples put such extra efforts as will give you the reputation of having the right qualities, which will enable you to make a fair profit on such specialties as you handle.

### Show Your Goods.

The twentieth century way to sell goods nowadays is to ask people if they want to buy, not only by means of spoken, printed and written words, but by an attractive floor display of your goods. The twentieth century ideal in store arrangement is to come as near as possible to showing all the goods one has for sale. If in addition to an attractive floor display you can also do something which will keep your goods more prominently before your customers than those of anybody else, it is dollars to doughnuts that you will get more of their trade than anybody else.

With the growing extension of the rural free delivery service the only practical way—the twentieth century way of reaching your prospective customer frequently—is by advertising and by mail.

### By Using the Mails

you can be at his elbow just as often as you please at a very moderate expense, and I don't believe there is any other expenditure in your business that will result in so much immediate and permanent good as the regular and systematic use of the mails.

The main point you are after is to get the story of your Bicycles and other specialty lines strongly before the people to whom they must be sold. There are a certain number of people to whom you must sell your goods if

they are to be sold at all, and other merchants are after their trade as well as you.

It's simply a question of bringing your goods more strongly to the attention of your public than any others. It's simply a question of asking for the trade oftener and more convincingly than anybody else.

### If You Stood Up 500 Men in a Row

where you could get at them consecutively you would surely sell some Wheels before you got very far down the line, but before you got through you would be very tired and other departments of your business would be very much run down at the heel.

Now, with the right kind of a modern mail order campaign you can be right on the spot with every one of your 500 men. The right kind of mail order campaign on specialty lines will bring results—no question about it. It will not only advertise your specialty lines but your regular business as well, and when your mail order campaign has accomplished its purpose, when it brings people into your store, lose none of its benefit and sell your customer not only the specialties he came to see, but your regular staples and other goods as well.

### Personality Counts.

In conducting a successful mail order campaign on specialty goods it's your own personality which finally brings and holds the trade you get. A reputation for originality is continually being sought after by most merchants. The easiest way to get that reputation in a mail order way is for one to be himself in every letter he writes. Letters that "sound like you" are not only sure to bring the greatest results, but are also the one kind of successful advertising your competitors cannot successfully imitate.

The way to stir up trade is to take some profitable specialty that there is a demand for and make it your leader. Each year's efforts should be to exceed last year's sales. It can be done, but only by constant effort. It is persistency that brings success in any line. In selling specialties there is no such thing as standing still. Make up your mind that you will get your full share of the business and sales will surely follow.

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JOSEPH RODGERS & SONS, LIMITED, Sheffield, England, for whom Alfred Field & Co., 93 Chambers street, New York, are sole agents in the United States, have issued a circular in which attention is called to several successful legal actions which the company has recently brought against parties in England using its name in connection with the marking of Cutlery not made by the Sheffield concern. The company announces its determination to protect its rights in this matter, and states that its product alone is entitled to be known as Rodgers Cutlery.

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AN interesting report is received from F. E. Myers & Bro., Ashland, Ohio, that one of their Ratchet Handle Pumps purchased through regular channels and without special solicitation on their part, has recently been installed in the historic old well at Mount Vernon, adjoining the residence of George Washington. The firm is naturally pleased that one of its Pumps has found so distinguished a place.

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MORLEY BROTHERS, Saginaw, Mich., manufacturers of Lumbering Tools, suffered a fire loss on January 2, which damaged buildings, stock and machinery to the extent of \$30,000. Steps were immediately taken to repair the damage done, which fortunately was not great enough to necessitate an entire suspension of operations. They are now prepared to fill orders as usual.

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THE directors of the International Silver Company, Meriden, Conn., have elected George H. Wilcox president, to fill the vacancy caused by the death of Samuel Dodd. George C. Edwards, Bridgeport, Conn., was made first vice-president, succeeding Mr. Wilcox; Charles A. Hamilton, New York, second vice-president, and C. H. Tibbitts, Wallingford, Conn., third vice-president.



## Retail Hardware Conventions.

*During the next month or two the following retail Hardware conventions will be held:*

- NORTH DAKOTA RETAIL HARDWARE ASSOCIATION**, Minot, February 5, 6 and 7. Secretary, C. N. Barnes, Grand Forks.
- NEBRASKA RETAIL HARDWARE ASSOCIATION**, Omaha, The Auditorium February 5, 6 and 7. Hardware exhibition. Secretary, J. Frank Barr, Lincoln.
- KENTUCKY RETAIL HARDWARE AND STOVE DEALERS' ASSOCIATION**, Louisville, Galt House, February 5, 6 and 7. Secretary, Jno. R. Sower, Frankfort.
- WISCONSIN RETAIL HARDWARE ASSOCIATION**, Milwaukee, February 6, 7 and 8. Hardware exhibition. Secretary, C. A. Peck, Berlin.
- WEST VIRGINIA RETAIL HARDWARE ASSOCIATION**, Clarksburg, February 12 and 13. Secretary, J. H. Krepps, Morgantown.
- PENNSYLVANIA RETAIL HARDWARE ASSOCIATION**, Pittsburgh, February 12, 13 and 14. Secretary, J. E. Digby, McKees Rocks.
- SOUTH DAKOTA RETAIL HARDWARE ASSOCIATION**, Mitchell, February 12, 13 and 14. Hardware exhibition. Secretary, Noah Keller, Woonsocket.
- COLORADO RETAIL HARDWARE ASSOCIATION**, Denver, Albany Hotel, February 13, 14 and 15. Secretary, Adolph Unfug, Walsenburg.
- ILLINOIS RETAIL HARDWARE ASSOCIATION**, Chicago, February 14, 15 and 16. Hardware exhibition. Secretary, Leon D. Nish, Elgin.
- CONNECTICUT HARDWARE ASSOCIATION**, Hartford, February 20 and 21. Secretary, J. De F. Phelps, Windsor Locks.
- NEW YORK STATE RETAIL HARDWARE ASSOCIATION**, Syracuse, The Alhambra, headquarters, The Yates, February 19, 20, 21 and 22. Hardware exhibition. Secretary, John B. Foley, Syracuse.
- IOWA RETAIL HARDWARE ASSOCIATION**, Des Moines, February 19, 20, 21 and 22. Hardware exhibition. Secretary, A. R. Sale, Mason City.
- INDIANA RETAIL HARDWARE ASSOCIATION**, Indianapolis, February 20, 21 and 22. Hardware exhibition. Secretary, M. L. Corey, Argos.
- OHIO RETAIL HARDWARE ASSOCIATION**, Columbus, headquarters, Southern Hotel, February 26, 27 and 28. Hardware exhibition. Secretary, Frank A. Bare, Mansfield.
- MINNESOTA RETAIL HARDWARE ASSOCIATION**, St. Paul, Knights of Columbus Hall, February 26, 27, 28, March 1. Hardware exhibition. Secretary, M. S. Mathews, Boston Block, Minneapolis.

### ASSOCIATION NOTES.

The programme of the Indiana Association meeting at Indianapolis is not yet quite ready, but it has been decided that the business sessions of the convention will occur in the afternoon. Members will thus be at liberty to visit and inspect the numerous Hardware exhibits of manufacturers and jobbers during the mornings and evenings. As was the case last year the official programme of the convention will contain the advertising announcements of those who are exhibiting at the convention, these being inserted gratis.

In addition to the regular programme for the annual meeting of the New York State Retail Hardware Association which will be held at Syracuse, a banquet has been determined on for Thursday evening, February 21, at the Yates. Tickets will be sold at a price simply intended to cover the cost of the affair. Members of the association, exhibitors and other visitors will be welcome to attend this banquet, each paying for his own entertainment only.

During the past year the growth of the North Dakota Retail Hardware Association has exceeded that of any similar period since its organization, about 100 merchants having been added to the roll of membership. There is every promise that the coming meeting at Minot will be the best and most largely attended in the history of the association. An interesting and instructive programme has been prepared and the officers feel that those who attend will be well repaid for the time and trouble involved. The last day of the convention will be devoted entirely to the discussion of Paint and especially the North Dakota Paint Law, which has attracted so much attention. The railroads have granted a special rate for the meeting, the Soo Line naming one fare for the round trip and the other roads in the State a fare and a third on the certificate plan.

Arrangements are about completed for the annual convention of the Ohio Hardware Association at Columbus, and indications point to a very large gathering of the trade. The Hardware exposition is attracting a good deal of attention and the association officials are doing everything they can to make it a success. The Ohio Question Box will be a prominent feature of the meeting as usual and will be under the efficient care of M. L. Corey, secretary of the National Association. With a view to drawing out Hardware merchants as to the sort of subjects they would like to have discussed at the meeting a blank form has been sent out to every merchant in the State, whether affiliated with the association or not, with the request that they submit topics which they would like to have presented to the meeting and discussed. In this way it is hoped to secure many suggestions, the consideration of which at the convention should be interesting and instructive.

As the displays of manufacturers and jobbers are yearly increasing in size and interest the Minnesota Retail Hardware Association, which will hold its annual meeting February 26 to March 1 at St. Paul, has concluded to give over the mornings for the inspection of the exhibits, reserving the afternoons for the business sessions. The meeting will be held at the Knights of Columbus Hall. A large portion of the first day will be occupied in organizing and welcoming the arriving members and guests. Tuesday evening it is proposed to have a social gathering, at which it is hoped to have the Governor of Minnesota and the Mayor of St. Paul present. Wednesday, the 27th, will be devoted to general discussion and the Question Box. A large part of Thursday will be given over to the business of the Retail Hardware Mutual Fire Insurance Company, and the Hon. T. D. O'Brien, insurance commissioner, has promised to make an address. The programme for the fourth day of the meeting has not been fully planned, but an effort will be made to make it as attractive as the previous days so as to hold the members for the closing session. During the past year the association has enjoyed a considerable increase in its membership and there is every reason to believe that the attendance at the annual meeting will be even larger than that of last year.

The Nebraska Retail Hardware Association has just issued a well printed programme for the annual meeting which will be held in the Auditorium at Omaha on February 5, 6 and 7. Among the papers which will be read at the meeting are the following: "Penny Postage vs. Parcels Post," by R. W. Weaverling, Peru; "'Merchants' and not 'Dealers,'" by F. W. Arndt, Blair; "Loyalty to Our Association and Hardware Mutual Insurance Company," by Albert Degner, Norfolk; "Selling Goods with a Small Margin or no Profit," by C. C. Howell, Fairbury; "Keeping a Record of Business," by H. D. Leggett, Ord; "Alms of the Hardware Merchant," by L. P. Wirth, Falls City; "Advertising a Country Store," by R. N. Hurlbut, Hartington. There will also be an elaborate discussion of "Practical

Salesmanship," in which Anton Hansen, Upland; J. G. Wright, Kearney; C. F. Schram, Omaha; T. V. Weinhold, Fremont; C. C. Hawthorn, Arcadia, and S. A. Sanderson, Lincoln, will participate and explain how they sell such lines as Hay Tools, Harness, Builders' Hardware, Field Fencing, Refrigerators and Stoves and Ranges. Addresses are also expected from C. W. Asbury, president of the American Hardware Manufacturers' Association, W. S. Wright, president of the National Hardware Association, and S. R. Miles, vice-president of the National Retail Hardware Association.

The Wisconsin Retail Hardware Association's Convention, in Milwaukee, February 6, 7 and 8, will be held in the imposing Public Service Building, recently completed by the Milwaukee Electric Railway & Light Company. Three large halls will be used by the association for the meeting and the Hardware exhibition. The main exhibit hall will be much larger than any ever before used by the association, and was selected because of the great amount of space desired by exhibitors.

### REQUESTS FOR CATALOGUES, &c.

*The trade is given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.*

REQUESTS for catalogues, price-lists, quotations, &c., have been received from the following houses, with whom manufacturers may desire to communicate:

FROM M. E. GALE, who is starting a Hardware, Gas Fitting and Tinning business at Angola, N. Y.

FROM EDISON ELECTRIC ILLUMINATING COMPANY OF BROOKLYN, purchasing department, 360 Pearl street, Brooklyn, N. Y.

### CALENDARS, Etc.

JOHN A. GREGG, manufacturers' agent, Burlington, Iowa: Attractive memorandum book for 1907, with list of manufacturers represented and their lines.

KEUFFEL & ESSER COMPANY, 127 Fulton street, New York: Calendar, with monthly sheets calling attention to the company's lines.

GEO. G. BLACKWELL, SONS & Co., Limited, metallurgists, The Albany, Liverpool, England: Attractive pocket knife, with rule on handle.

The Chicago branch warehouse and salesrooms of P. & F. Corbin, manufacturers of Builders' Hardware, New Britain, Conn., now temporarily located at 167-169 Lake street, will be removed to their former location at 104-106 Lake street about April 1. Owing to a fire which destroyed the entire stock, the business was temporarily resumed in the present quarters. Plans, which have already been adopted for the new showroom, provide for one of the most artistic displays of Builders' Hardware in the West. Within a very short period after the fire shipments of 2000 cases of all grades of Builders' Hardware were made from the New Britain plant, which aggregated a total of 12 cars.

GLOBE STAMPING COMPANY has purchased the plant and business formerly owned by F. G. O. Ehle & Co., Buffalo, N. Y. The officers of the company are A. L. Warner, president; L. Rothschild, vice-president, and C. Kuhn, secretary. It will continue the manufacture of the patent nestable Dinner Pails and Folding Lunch Boxes made by the old concern, and is increasing its facilities, intending in the near future to make ordinary Dinner Pails also.

At the annual meeting of the National Bolt & Nut Company, Pittsburgh, Pa., held on the 15th inst., the following officers were chosen for the ensuing year: John W. Hubbard, president; W. R. Kuhn, vice-president; E.

W. Zinsmaster, secretary and treasurer; John W. Hubbard, S. A. Rankin, W. R. Kuhn, E. W. Zinsmaster, W. T. Easton, directors.

### PRICE-LISTS, CIRCULARS, &c.

*Manufacturers in Hardware and related lines are requested to send us copies of catalogues, price-lists, &c., for our catalogue department in New York; and at the same time to call attention to any new goods or additions to their lines, of which appropriate mention will be made, besides the brief reference to the catalogue or price-list in this column.*

COLT'S PATENT FIRE ARMS MFG. COMPANY, Hartford, Conn.: Illustrated catalogue devoted to Colt's Revolvers and Pistols.

WIRE GOODS COMPANY, Worcester, Mass.: Set of miniature Wire articles for a doll house, including Coat Hanger, Toasting Fork and Vegetable Masher.

THE MARTIN-SENOUR COMPANY, Chicago, Ill.: Printed matter relating to Paints, including Color Cards, Circular Follow up Letters, Novelties, &c.

KRAEUTER & Co., Newark, N. J.: Printed matter relating to Chisels, of which they make 50 styles, 400 sizes; including Cold, Cape, Diamond Point, Stone Drills, Star Drills, Ripping, Floor, &c.

N. P. CHANEY, 88 Massachusetts avenue, Buffalo, N. Y.: Catalogue illustrating and describing Chaney's Patent Burglar Proof Sash Lock.

THE GEO. DELKER COMPANY, Henderson, Ky.: Catalogue No. 35, illustrating lines of Vehicles, including Driving Wagons, Buggies, Runabouts, Surreys, Phaetons, &c.

LOWELL SPECIALTY COMPANY, Lowell, Mich.: Illustrated catalogue No. 1, listing an extensive line of Sprayers, Cream Separators, Washing Machines, Sheet Metal Specialties, &c.

PATTERSON, GOTTFRIED & HUNTER, LIMITED, 146-150 Centre street, New York: Catalogue illustrating and describing the Walden Ratchet Wrench. Wrenches with square openings will fit nuts from 5-16 to 1/2 in. and Wrenches with hexagonal openings will take the head of cap screws from 5-16 to 1/2 in.

GEORGE GRIFFITHS COMPANY, Ames Shovel & Tool Company, owner, Philadelphia, Pa.: January, 1907, price-list of Shovels, Spades, Scoops and Drainage Tools.

STANDARD ASPHALT & RUBBER COMPANY, Chicago: Booklet referring to Sarco Roofing, Asphalt Paving, Mastic Matrix, Water Proofing, Insulation, &c.

C. E. BONNER MFG. COMPANY, Chrisman, Ill.: Illustrated catalogue devoted to Drop Forged Tools, including Chain Pipe Wrenches, Button Pattern, Combination and Gas Pliers, Combination Fence Tools, Pipe and Engineer Wrenches, Pry Bar and Nail Puller, Box Openers, &c.

LAW MFG. COMPANY, Merriam Park, Minn.: Illustrated catalogue No. 13, devoted to Haying Tools, Hay and Stock Rack Fixtures, Hay Fork Pulleys, Gable Hay Doors, Barn Door Hangers and Track, Lever Harrows, &c.

GEORGE P. TAYLOR & Co., Clinton, Mass.: Illustrated descriptive circular relating to the Boston Grass Shears, for trimming about the edges of lawns and grass plots.

AMERICAN CARBON & BATTERY COMPANY, East St. Louis, Ill.: Price-list of Stationary Motor and Generator Carbon Brushes. Among the articles illustrated is a new Motor Brush, made to meet the requirements of street railroad use, also a new form of Pig Tail. With this form of connection it is explained that it is possible to realize a saving of from 10 to 20 per cent. on Pig Tail used on small machines.

CLINTON WIRE CLOTH COMPANY, Clinton, Mass.: Substantial book, referring to Clinton Wire Lath and containing specifications for its use, together with diagrams, views of buildings, &c. The book also refers to Clinton Perforated Metals, Metal Lockers, Wire Cloth, Woven Wire Fence, &c.

JOHNSTON HARVESTER COMPANY, Batavia, N. Y.: Effective, illustrated catalogue of Johnston Harvesting Machinery.



## Postal Legislation At Washington.

(FROM OUR SPECIAL CORRESPONDENT.)

WASHINGTON, D. C., January 22, 1907.

THE House Post Office Committee has completed the hearings upon the annual Post Office Appropriation bill and has so far proceeded with the drafting of the measure that the correspondent of *The Iron Age* is in position to state that it will contain no provision for a parcels post in any form, either as a permanent institution or in the nature of an experiment. While the committee still has under advisement two propositions in the form of catalogue house legislation—namely, the post check currency plan recommended by First Assistant Postmaster-General Hitchcock, and Third Assistant Postmaster-General Madden's project for the consolidation of third and fourth-class mail matter, thereby reducing the rate of merchandise from 16 to 8 cents per pound—it is believed that a majority will oppose both these propositions on the ground that they are antagonistic to the welfare of the retail merchants of the country, whose interests are now receiving a fair degree of attention in Congress as the result of the organization of national associations in all the leading trades.

The Post Office bill will probably be completed in time to be reported to the House about February 1 and will reach the Senate before February 15. While the indications at the present time are favorable to an entirely satisfactory measure, the situation justifies the very careful attention of the retail Hardware trade, which has borne an important part in the campaigns to prevent the enactment of mail order legislation in the past two Congresses.

### National Board of Trade Opposes Parcels Post.

The National Hardware Association of the United States, which has become almost as conspicuous as the Retail Association in the fight to prevent the Government from subsidizing the catalogue houses, won a notable victory during the annual convention of the National Board of Trade, which adjourned on the 18th instant. The Board of Trade has for many years favored the establishment of a domestic parcels post and on the occasion of its annual conventions in Washington it has adopted resolutions indorsing the project with more or less enthusiasm. A year ago the National Hardware Association, which is affiliated with the board, took an active part in the discussion of postal projects, and although an indorsement of a domestic parcels post was finally put through, it was by long odds the most conservative declaration on the subject ever made by the Board of Trade. This year, however, the campaign of education conducted by retail interests bore fruit, and after a debate which occupied nearly an entire day the board reversed itself and adopted, by a vote of 46 to 19, a series of resolutions along lines suggested by the National Hardware Association, opposing any legislation looking to the establishment of a parcels post in the United States. This extraordinary outcome has attracted much attention and its influence upon the postal committees of both houses cannot fail to be important as showing the latest tendency of this movement as influenced by leading trade organizations.

When the board took up the subject of postal recommendations it found upon its docket no less than 15 resolutions submitted by commercial bodies in all parts of the country. Nearly all of these propositions related to the parcels post and 1-cent letter postage, one or two referring to the proposed reclassification of second-class mail and to the adoption of a universal 2-cent international postal rate. The National Hardware Association submitted the following resolutions urging the adoption of penny postage and protesting against the establishment of a domestic parcels post:

*Whereas*, First-class mail matter is producing an enormous profit to the Government, which profit is being absorbed by losses incurred in other classes of mail;

*Resolved*, That we appeal to Congress for a rate of 1 cent on first-class mail matter, and that we protest against the reduc-

tion in price of any other class of mail matter until the business community can be more equitably treated in connection with first-class mail.

*Whereas*, We believe that the United States Government should not be called upon to establish a parcels post system which would be of advantage to certain mail order houses in a few of the leading cities of the country and to the serious disadvantage of several hundred thousand retail merchants scattered throughout the land; and

*Whereas*, We believe that the establishing of a parcels post could only be done at an enormous loss to the Government; therefore

*Resolved*, That we place the National Board of Trade on record as opposing the establishing of a parcels post.

The Cleveland Chamber of Commerce presented a resolution similar to that put forward by the National Hardware Association, as did also the Manufacturers' and Producers' Association of Knoxville, Tenn. The interest in this subject shown by the commercial bodies of the leading Southern cities is highly significant in view of the efforts which the mail order houses have made during the past year or two to extend their business in the South. Tennessee especially has recently become a battle ground, at least one of the large mail order houses having undertaken a systematic advertising campaign in that State.

The principal resolutions in favor of a domestic parcels post were presented by the Cincinnati Chamber of Commerce and by the Baltimore Board of Trade. Both these organizations based their recommendation upon the "success of nearly all civilized foreign countries" in maintaining a parcels post. The Pittsburgh Merchants' and Manufacturers' Association presented a resolution in favor of penny postage, and adding that "in deference to the widespread discussion of the question of a parcels post by commercial organizations of the United States we recommend to Congress the serious consideration of the subject with a view to ascertaining whether it can be adopted with advantage to the interests of the greatest number of our people and without loss to the Government."

All resolutions submitted to the convention were referred to a Committee on Postal Affairs, composed of 14 members. This committee sat behind closed doors for several hours, but, after a very animated discussion, found itself unable to agree and submitted two reports to the convention, one favorable and one adverse to a domestic parcels post, seven members of the committee signing each report. This action brought the subject squarely before the full convention on its merits. In the protracted debate that followed C. W. Burrows of Cleveland took the lead against a parcels post, while Finley Acker of the Philadelphia Board of Trade favored a hearty indorsement of the project.

### Mr. Burrows' Address.

Mr. Burrows, in replying to the arguments of the parcels post advocates, declared that any proposition to impose upon the Government a service costing more than the charge paid by the beneficiary would mean simply to saddle a deficit upon the taxpayers at large, who receive no benefit therefrom. Those who favor a parcels post, he said, had no thought of requiring merchandise transported through the mails to pay the cost of its transportation; indeed, such a proposition was diametrically opposed to the views of the parcels post boomers, who desire to receive benefits at the expense of the public. Continuing, he said:

Paternalistic or socialistic legislation does not diminish the expense account, but simply transfers it from one person's shoulders to those of another. If parcels were charged a rate equal to the cost of transportation by mail, no one here would advocate such a project, but it cannot be controverted that if the users of any governmental service do not pay a sufficient tariff for that service somebody else who is not a beneficiary must foot the bill. In Germany a zone system prevails, the rates being simplified as the distance increases. In England a flat rate prevails, which is extremely moderate. But circumstances alter cases, and we should bear in mind that the total area of Germany is but 208,000 square miles, while the area of the State of Texas is 265,000 square miles. The area of England is less than one-third that of Texas. Moreover, no haul in England can be long, while but few hauls in the United States would be short, and yet England is losing money on its parcels

post service, with all conditions favoring. We cannot have a zone system as Germany does, for it is contrary to our traditions, but without the operation of such a system or without the establishment of a monopoly in the handling of merchandise, such as the Government now maintains upon the handling of first-class matter, the post office would get all the losing business and none that would pay the cost of transportation. It is well enough to talk of cheap transportation, which, of course, every one desires, but the practical question before us is how the deficit that would undoubtedly be created by a domestic parcels post would be met. There can be but one answer—namely, by the taxpayers of the country. I do not believe that any honest man expects to get something for nothing or that any reasonable man would ask that the Government shall perform for him a service at less than its actual cost.

#### Resolutions Adopted.

The manifestations of approval that greeted Mr. Burrows' remarks foreshadowed the action of the convention, which then proceeded to reject the resolutions favoring a domestic parcels post and to adopt the following:

*Whereas*, Persistent agitation in favor of the establishment in this country of a "carrying" system for parcels under the direction of the Post Office Department, modeled somewhat upon foreign lines, is being urged in many directions; and

*Whereas*, The National Board of Trade recognizes that circumstances in this country in regard to social conditions, length of haul, density of population, lack of monopoly of carriage, improbability of the establishment of a zone system, &c., render an extensive development here of a parcels carrying system, such as exists in several foreign countries, certain to entail a loss upon the Government of most serious proportions, amounting to many millions of dollars for equipment expenses, and further involving an operating deficit of enormous proportions annually;

*Resolved*, That the National Board of Trade is opposed to any legislation looking to the establishment of a parcels carrying system in connection with the Post Office Department of the country at this time.

The opponents of a domestic parcels post are much elated with the action of the Board of Trade, and copies of the resolutions adopted are being freely circulated in both House and Senate.

W. L. C.

### CATALOGUE OF COMMUNITY SILVER.

A CATALOGUE has just been issued by the Oneida Community, Oneida, N. Y., which must be regarded as rather a notable production. It is over 16 x 9 in. in dimensions, and contains about 50 page plates showing in actual size the lines of flatware manufactured by the company. There are also several reduced reproductions of handsome box sets. Accompanying the plates are complete and well arranged price-lists of all goods illustrated. The half-tone cuts are of the highest order, reproducing in a remarkable degree the soft tones and sheen of the metal, and at the same time faithfully bringing out the detailed beauties of the various designs. Handsome views are given of the Community factory at Niagara Falls, and also of the home buildings at Oneida. The catalogue is certainly a beautiful production and will doubtless be appreciated by those who receive it.

#### J. K. LARKIN & CO.

J. K. LARKIN & CO., 22-26 and 34 Reade street, New York, are manufacturers' agents and distributors for Bolt and Nut and iron products. They carry in their New York warehouses a large stock of Bolts, Nuts and Rivets of every kind; Track Bolts; Track, Boat and Dock Spikes; Cast Iron and Round Plate Washers; a full line of Sledges and Heavy Hammers, Picks and Crowbars; Common Proof, BB and BBB Chain. They also have in stock many lines of material incidental to the business.

C. N. LUTTRELL has resigned as president of the Luttrell Hardware Company, Brewton, Ala., on account of the condition of his health, which requires a change of climate, and is temporarily located at Kirksville, Mo. Mr. Luttrell expects to enter the Hardware field after a short period of relaxation, and will possibly locate in Oklahoma.

### A SUCCESSFUL EXPORTER'S METHODS.

An interesting interview with Frank E. Southard, president of the Toledo Metal Wheel Company, Toledo, Ohio, is published. Mr. Southard was one of the delegates to the recent export convention at Washington under appointment by Governor Harris of Ohio. His company manufactures Children's Velocipedes, Wagons and other articles of a kindred character, and operates a very large factory in its manufacture, the business having been established about 20 years. Shortly after the foundation of the company Mr. Southard saw the possibilities of developing an export trade, and going at it vigorously achieved such success that the Toledo Metal Wheel Company's goods are finding a market in many countries. He is reported as making the following statement:

Our foreign business is increasing very rapidly. We have ample evidence that dealers in foreign countries appreciate the practicability of our line, and the most satisfactory evidence of this kind is the constantly increasing stream of orders from foreign quarters. This applies particularly to the South American republics. We make a feature of all the novelties in our lines, and a large force of experts is constantly engaged getting up new designs and various things to suit the ever-changing fancy of Young America. If I were to be asked for the

#### Secret of Our Success

In the export trade, I would simply say that there is nothing secret or mysterious about it. We go after export business just as we do after everything else, with a determination to offer the best goods to everybody, and to meet the requirements and conditions of our customers, so far as it is practical to do so. There is nothing particularly difficult about meeting foreign requirements.

The South American is not very different from the North American in business ways after all, and he knows what is right and proper in business, just as well as we do here. Sometimes he wants to take more time to pay his bills than we like, and he is somewhat fussy about the way his goods should be packed, but he has a right to be fussy in this respect and we have no great difficulty in meeting him as to the payment of accounts.

#### Everything Depends Upon Proper Attention to Details

In the export trade. The details, however, are no more difficult to understand or grasp than they are on home trade, but there is at least one quality which is more necessary and perhaps called for in larger quantities in the export business, and that is patience. No manufacturer, no matter how fascinating his goods, or how indispensable they may be to humanity, can immediately develop a large market merely by saying he is ready to receive orders. It requires time and attention, but time and attention, properly applied to the right methods, are sure to win out in the end.

#### Not Rainy Day Business.

I regard my export trade as one of the most valuable features of my business. I have never treated it as rainy day business, but have always regarded it as something that should be assiduously fostered at all times. We cater to all export requirements, and find it worth our while to make our goods according to whatever whims and fancies our customers may express. We also find it desirable to pay particular attention to packing and shipping.

So I have given away the "secret" of one firm's success in the export business, and shall only be too glad if it opens a door to others to step in and secure a larger volume of trade.

### THE PHILADELPHIA HARDWARE MERCHANTS' AND MANUFACTURERS' BANQUET.

THE banquet that usually follows closely on the annual meeting of the Philadelphia Hardware Merchants' and Manufacturers' Association, which was held this year on January 15, will take place at the Bellevue-Stratford Hotel January 31. The Banquet Committee, consisting of E. S. Jackson, Chas. Z. Tryon, Walter Devlin, J. J. McCaffrey, A. K. Liveright and A. S. King, is making arrangements, which, when completed, will no doubt make this the best banquet that the association has ever held.



## TRADE ITEMS.

GRANITE STATE MOWING MACHINE COMPANY, Hinsdale, N. H., which has for some time manufactured the Capitol Lawn Trimmer and Edger, has lately secured on a royalty basis the exclusive right to make and sell this specialty throughout the United States and foreign countries. The article has been found to meet a practical need and demand for it is rapidly increasing, and it is now in use in many leading cemeteries. An encouraging foreign trade is also being developed.

On January 8 the Michigan Stove Company's plant, 1022-1056 Jefferson avenue, Detroit, suffered a disastrous loss by fire, which destroyed large storage warehouses filled with manufactured stock; also pattern shops, nickel plating and gas range plant, together with a large amount of valuable machinery. Fortunately the operating portion of the plant was not injured and the works were able to continue running as usual. Owing to large stocks carried at other points no serious delay in the filling of orders was occasioned.

JOHN E. KELLY, Fitchburg, Mass., secretary of the Simonds Mfg. Company of that city, and M. P. Higgins, Worcester, Mass., of the Norton Company and Norton Grinding Company, were among the delegates appointed by Governor Guild of Massachusetts to represent the State at the National Convention for the Extension of Foreign Commerce, held at Washington last week.

THE Government of the State of Connecticut inaugurated January 9 has a decided Hardware flavor, the Governor being Rollin S. Woodruff of C. S. Mersick Company of New Haven, and his commissary-general Col. Charles M. Jarvis of the American Hardware Corporation of New Britain. Another member of the staff is a prominent Hardware manufacturer, Major W. H. Lyon of the Charles Parker Company, Meriden, Conn.

ROBERT M. WELLS, so long identified with the Hardware trade through his connection with the Wells & Nellegar Company, Chicago, was recently elected vice-president of the Bankers' National Bank of that city, and after February 1 will give his time and attention to the banking business.

A. TREDWAY & SONS HARDWARE COMPANY, Dubuque, Iowa, is distributing to the trade copies of its new catalogue of general Hardware and Blacksmiths' Supplies. The book is a comprehensive one, containing nearly 1200 pages, printed on good paper and bound in a loose leaf binder. Lines referred to and catalogued in detail include Mechanics' and Edge Tools, Farming Tools and Implements, Builders' Hardware, Nails, Screws, Tacks, Miscellaneous Hardware, Iron, Steel, Bolts, Nuts, Washers and Blacksmiths' Hardware, House Furnishing Goods, Enameled Ware, Tinware, Tinnners' Trimmings, Tin Plate, Sheet Steel, Steel Roofing and Siding, Tinnners' Machines and Tools, Cutlery, Silverware, Watches, Lead Pencils, Guns, Rifles, Revolvers, Ammunition, Sporting Goods, Fishing Tackle, Bicycle Supplies, Express Wagons, Sleds and Skates, Paints, Colors, Varnishes, Paint Brushes, &c.

THE annual meeting of the Milwaukee (Wis.) Retail Hardware Association was held at the Builders' Club, Tuesday evening, January 8, at which the following officers were elected for the ensuing year: President, Charles Pfugardt; vice-president, J. O. Prasser; corresponding secretary, F. Herrenbruck; financial secretary, William Grosjean; treasurer, J. Stollenwerk.

THE STERLING WHEELBARROW COMPANY, Milwaukee, Wis., will open a sales office at 20 Canal street, Chicago. Repairs and alterations are now being made in the premises, and the company expects to be ready for business at this location about February 1.

WELLS BROTHERS COMPANY, Greenfield, Mass., expects to have its trade catalogue containing 256 pages and representing the company's complete line of products, ready for delivery about February 10. The company will be pleased to send a copy of the catalogue to the trade on application.

THE KALLA MFG. COMPANY, 156 Fifth avenue, New York, has been incorporated with \$50,000 capital stock to

manufacture Kalla's Combination Carpenters' Plane and other tools. The combination plane is practically two planes in one. The invention provides improved means whereby a plane stock or smoothing plane can be attached to a relatively larger stock or shoe, so that a jack plane is produced, and permits of plane stock or smoothing plane being utilized independently of the larger stock or shoe. The invention further provides improved means for adjusting the cutting tool. The directors of the company are Alexander Kalla, Joseph Cibulas and Orlando J. Hackett. A factory will be built at St. George, N. J.

THE warehouse and office building of Mossman, Yarnelle & Co., Hardware jobbers, Fort Wayne, Ind., is rapidly nearing completion, and will be one of the largest commercial structures in that city. It will have a height of four stories, and will provide a floor area of 90,000 sq. ft.

ROBERT MURRAY, wholesaler of General Hardware and representing the Atlantic Screw Works, Hartford, Conn., and C. A. Maynard, Northampton, Mass., manufacturer of Solid Socket Shovels, is moving from 24 Duane street, New York, where he has been for about 20 years, to 104 Reade street. Mr. Murray has leased the entire building, but will occupy only the lower portion, until recently tenanted by the Livingston Nail Company. Occupying the same premises there will be the firm of R. & H. J. Murray, brothers, who handle Belting, Hose and Packing. This firm is agent for the Lake Shore Rubber Company and La Favorite Rubber Mfg. Company, which manufacture Hose and Packings; John M. Watts' Sons, Packings, and C. W. Arny & Son, Leather Belting.

HAWKEYE INCUBATOR COMPANY, Newton, Iowa, has recently opened a branch house in Indianapolis, Ind., for the accommodation of its Eastern trade. Orders for the company's One Minute Washing Machines will receive prompt attention if addressed to Hawkeye Incubator Company, Indianapolis, Ind.

I. J. HAUG, manager of the Fargo, N. D., branch of the Avery Mfg. Company, Peoria, Ill., manufacturer of Agricultural Implements, Threshing Machinery and Farm Wagons, has resigned and has accepted the position of manager of the Haug Bros. & Nellerhoe Company, Limited, Winnipeg, Man. This company distributes the Implements of the Avery Mfg. Company in Manitoba, Saskatchewan and Alberta.

SHOECRAFT-SMITH MFG. COMPANY, Sturgis, Mich., manufacturer of Imperial Steel Step Ladders, is represented by W. R. T. Bush, Detroit, Mich., and C. M. Avery, Chicago, Ill., in the introduction of this line to the retail and jobbing trade.

THE second annual banquet of the A. J. Harwi Hardware Company, Atchison, Kan., complimentary to its traveling and house salesmen and office staff, was enjoyed at the Byram Hotel, on the 28th ult. It was attended by the 15 traveling and house salesmen, the office staff and the members of the company.

THE McVOY-WESSLING HARDWARE COMPANY, 72-76 Lake street, Chicago, which will shortly succeed to the Hardware jobbing business of Wells & Nellegar Company, has been organized by the election of the following officers: Joseph McVoy, president and treasurer; M. P. Wessling, vice-president; Joseph B. Bettle, secretary.

THE CHANDLER & FARQUHAR COMPANY, 34 Federal street, Boston, has made very radical changes in the arrangement of its large store, which will add greatly to the convenience of its offices and also increase store facilities. Formerly the offices occupied the central space of the floor. They have been removed to the side, where their arrangement is admirable for convenience and comfort. The store is so high studded that the offices have been roofed over, the space above being occupied as a gallery for the storage of goods.

THE WASHINGTON CUTLERY COMPANY, Milwaukee, Wis., has removed its general office and shipping department to the shops at Watertown, Wis., where all mail should be addressed in the future. The company manufactures Village Blacksmith Hand Made Butcher Knives and Tools and Washington Cutlery.

## System for the Retailer.

Sixth Article.

## CASH SALES AND CASH BALANCE RECORD.

BY JOHN A. MANSON, BURLINGTON, VT.

PERHAPS the most convenient way to handle cash sales in a medium sized business is to use numbered cash slips. In the average Hardware store where, say half a dozen clerks are employed and the work of each is quite general and varied, the value of a salesman can-

No. 7	665
I	
No. 7	Am't Recd.
I	
Plum	1.20
Leak	1.50
Exp. Dime	.30
Shaver	1.40
Hand Drill	2.25
	6.65

Fig. 1.—Cash Slip Made Out. The Broken Line Represents Perforations Where the Slip Is Torn from the Stub.

not be measured by his cash sales alone. Therefore it is not necessary that each clerk should have his own sales book; one book at the cashier's desk is sufficient. Clerks must make out a slip for every sale, which the cashier

December 17th, 1906.									
7	665	1.20	20	56	1.82	80	30	4	883
8	80	32	20	56	1.82	80	30	4	883
9	20	32	60	57	1.51	08	5	80	28
10	110	34	140	58	38	02	20	6	35
11	08	35	87	59	26	03	60	7	20
12	30	36	28	60	07	04	15	8	60
13	24	37	70	61	1.25	05	47	9	12
14	20	38	10	62	13	06	20	10	22
15	340	39	80	63	45	07	08	11	75
16	10	40	175	64	260	08	25	12	15
17	40	41	12	65	18	09	80	13	30
18	60	42	15	66	27	10	12	14	45
19	110	43	30	67	45	11	30	15	150
20	20	44	60	68	15	12	38	16	40
21	40	45	85	69	20	13	08	17	65
22	05	46	06	70	18	14	20	18	20
23	12	47	10	71	32	15	40	19	45
24	28	48	38	72	75	16	80	20	12
25	70	49	40	73	15	17	05	21	275
26	08	50	09	74	12	18	10	22	70
27	17	51	48	75	135	19	22	23	35
28	32	52	10	76	05	20	130	24	18
29	220	53	180	77	20	1	10	25	125
30	30	54	20	78	70	2	20	26	25
31	45	55	33	79	35	3	15	27	40
20.44 22.30 44.83 56.86 81.84 76.32									
Cash on hand 420.30									
amount paid 160.17									
Cash sales 108.27 688.74									
Bills paid 120.30									
Cash on hand 568.44 688.74									

Fig. 2.—Day's Record of Sales and Cash Balance Record.

may verify with the stub. Under no circumstances should the cashier make change or receive money without having a slip as a voucher.

Cash slips come in books numbered from 1 to 100. Fig. 1 illustrates a slip made out before it is detached

from the book. In balancing cash for a day all slips are recorded as in Fig. 2, and every one is called to account. In the illustration the day's business starts with No. 7, slip No. 6 having been the last used on the preceding day. Blanks for such a daily cash balance record may be prepared in advance, the numbers being typewritten, as shown in the cut. Then it is a small matter to fill in with pencil or ink the amount of each slip as it is received in numerical order. It will be seen that the same sheet is used for making the daily cash balance, and from it the sales are posted to the cash book. The sheet is then filed away in a binder, while the cash slips should also be preserved for a time, each day's being filed by itself.

The system so far described, of course applies to transient transactions in which goods are bought and carried away by customers. In the case of delivery cash

Who	Jas. Tuttle	When	
Ordered by	Self	Rec'd	
Where	28 Cedar St.	Wanted	
How	Relay		
Filled by	L. S.	Checked by	E. H. P.

1	Boys Tool Chest No 13	\$3.50
4	Snow Shovel No 74	.40
4	Ice Scraper No 20	.50
4	Lantern No 60	.75
4	Univ. Chopper No 3	1.75
4	Hilled Axe No 10	.85
4	Buck Saw No 30	.75
4	Saw Buck No 2	.25
4	Bin Lin Taper File	.08
		<u>8.83</u>

Fig. 3.—Example of Delivery Order Slip.—The Amount Only Is Entered on Cash Slip.

sales orders are taken on delivery order slips, an example of which is shown in Fig. 3, and the amount only is entered on the cash slip.

(To be Continued.)

## SIMONDS MFG. COMPANY'S NEW CATALOGUE.

SIMONDS MFG. COMPANY, Fitchburg, Mass., and 40 Murray street, New York, has just issued a handsomely illustrated catalogue of its entire line, the products of four large factories, of which two are located in Fitchburg, and one each in Chicago and Montreal, full page engravings of which are shown. There have been many additions to the comprehensive lines of Saws for all purposes, both hand and power, Machine Knives, Files, Hack Saws, &c. Some of the newer goods are as follows: Page 68, light weight Hand Saw Clamp for carpenter's kit; pages 70-71, Circular Hand Saw Setting Tools, and carpenter's Saw Set; page 74, Band Saw Filing Vise; page 76, Setting Machine for Band Saws; page 77, Power Setting Machine, and page 129, Circular Knives for cutting paper, cork cloth and leather. There have also been increases in the lines of Cross Cut and Circular Metal Cutting Saws, Carpenters' Hand Hack Saws for coarse work, especially when there is a likelihood of striking metal, nails, &c., the latter having an adjustable handle for different conditions of work. The book, of 138 pages, illustrates and describes Inserted Point and Solid Tooth Circular Saws, Band Saws, Cross Cut Saws, Hand Saws and Mill Saws, Files, Hack Saws and various other goods related to the line, together with sawmakers' Tools.



## Missouri Retail Hardware Association.

**S**ULLEN, stormy, cloud laden weather, with sleet, snow and rain, greeted the members of the Missouri Retail Hardware Association as they assembled in annual convention, January 17 and 18, at the Midland Hotel, Kansas City. Notwithstanding the unfavorable weather conditions, making travel tedious and more than ordinarily perilous, the attendance was up to the mark of last year, there being nearly 100 members and visitors present. Many members of the association are also members of the Western Implement and Vehicle Association, whose annual meeting was held in Kansas City January 14 to 17, and in fixing the date of its meeting the Hardware Association had in view the convenience of its members attending both meetings.

Much interest was manifested in the discussion of subjects provided in the programme, and although there were no formal speeches made or special papers read, each session was filled with earnest consideration of topics presented and plans suggested for advancement of the interests of the Hardware trade.

The exhibits, of which there were a large number, included many of notable interest. They were distributed about the city in several places, the majority being intermingled with those of the Implement and Vehicle merchants. A large section of both exhibits was shown in the convention hall, and another at the Coates House, and still another, mostly of Hardware lines, at the Midland Hotel. At each of these points there were crowds of visitors attracted by the displays, and it was estimated that there were fully 5000 persons in the city, drawn thither by the two conventions.

The opening session on Thursday morning was called to order by President W. H. Hahn. In a felicitous speech Acting Mayor D. R. Spaulding tendered a hearty welcome to the Hardwaremen, which was happily responded to by the president.

### President's Annual Address.

After reviewing the work of the organization and commending the faithful and efficient work of Secretary Neudorff, and emphasizing the need of better organization, President Hahn, in his address, spoke in part as follows:

I have a suggestion that as president of this association I wish to make. Our present secretary, as you know, has done loyal and beneficial work in behalf of this association. He has spent not only much valuable time in looking after its interests, but has also spent his own money in defraying its expenses without expectation of reimbursement. Now this should not be expected of any officer, and I want to suggest that this association consider the advisability of paying its secretary a reasonable salary, that will in some measure at least compensate him for his services.

#### WHAT CAN BE DONE BY ORGANIZED EFFORT

is plainly shown in St. Louis, where they have a strong local organization. Jobbers there have ceased to sell at retail, and everything in the nature of a catalogue house has been eliminated, all of which is due to well directed organized effort. I would further suggest that in selecting our new officers the president and secretary be chosen from the same city. Much burdensome correspondence would thereby be avoided and better results secured. There are, I think, too many petty jealousies among retailers. It hurts prices and destroys profits. Let us get together, as the jobbers do, and maintain our prices at a fair profit level.

### Mr. Norvell's Address.

A call for practical talks on how best to sell various articles of Hardware called forth animated discussion, which occupied a large part of the afternoon session. Among those who responded was S. Norvell of the Norvell-Shapleigh Hardware Company, who talked entertainingly upon the subject in hand, and also touched upon other topics of vital importance to the trade. The following extracts are made from his remarks:

In my experience I have seen merchants get rich, and I have seen them fail. I have seen one merchant grow wealthy enough to start a national bank, while the man who bought his store and succeeded him soon went into

bankruptcy. The difference between the two men was simply that one was a merchant and the other was not. There is something worth while in the name of merchant. It means something, and might well be made the subject of a long talk.

#### A POOR MERCHANT.

I want to speak of a custom that I have observed among merchants, which I consider most unbusinesslike.



WM. H. HAHN.

When an invoice of goods is received, and the merchant sits down at his desk with the invoice and proceeds to mark up his selling price without examining the goods, I am convinced that he is a poor merchant. Because a thing costs you \$1.50 a dozen is no definite reason why it may not be worth either more or less than that price. Only an examination of the goods will tell what the true values are.

#### SELLING ON AN AVERAGE.

I have noted the remarks that have been made about selling everything at high prices. You can't sell everything at a high price; some articles will bear it and others will not. Besides, you have to consider competition. I believe in the average. Life is but an average, man's health is nothing but an average, and your ability runs on an average. I believe, therefore, in selling on an average. And if you use good judgment in marking your goods you can sell them cheaply.

### Report of the Secretary.

In Secretary Neudorff's report, read at the Thursday afternoon session, the difficulties encountered in the work of organization were pointed out, and the association was urged to more serious effort in order that it may realize in the fullest measure the results for which it is striving.

#### Mutual Insurance.

In his report on mutual insurance, Secretary Frederick Neudorff referred to a not encouraging condition, a loyal support on the part of the members being lacking. He continued as follows:

In my judgment there are only three ways open for our insurance branch: 1, to liquidate and quit, by collecting assessments; 2, for the members, as many as will, but not less than 40, to put up cash in the sum of \$100 each, and do away with the premium note and try to win that way; 3, to underwrite our policies with the Minnesota company, that company to credit assessment account with the 45 per cent. rebate they contract to repay during 1907, and that portion of the rebate to be paid during 1908, until losses are paid and fee for underwriting is paid, they to hold our premium notes as guarantee for our adherence to terms of contract.

If we do this the company will put four or five trained solicitors in the field and no doubt treble our membership, permitting us to work along lines which promise fuller returns for our energy. The present is proving how very valuable a safeguard this should have been to our membership if it had been given the proper support.

### The Hardwareman's Advertising.

A discussion of "Hardware Advertising" was freely participated in by the members present and brought out a variety of views and suggestions. Referring especially to gift advertising, R. H. Myers expressed himself in part as follows:

I am against fake advertising. It is a common thing with us in the larger cities, and no doubt to some extent in the smaller ones, that when some church affair or social entertainment is to be gotten up with a programme they seek to raise money by filling it with advertising. From among your customers a representative is selected to call on you at your store and ask for a \$5 or \$10 advertisement. This became so troublesome and annoying that when our local Retail Merchants' Association was

formed it was one of the first matters taken up. We at once passed a resolution that was signed by every house except one or two, and we finally succeeded in getting them in, so it was unanimously voted that no advertisement of any kind in the shape of programme or other special advertising, outside of the regular newspapers and journals, should be allowed. To our surprise and gratification we found that it worked like a charm. When called upon by scheme advertising solicitors we



FREDERICK NEUDORFF.



TAYLOR FRIER.

would show them a printed notice stating that we were prohibited under penalty of a fine from placing advertisements except through regular established newspapers and journals. I think I am safe in saying that this action resulted in a saving to us of \$500 a year, formerly spent for advertising that was never of any practical advantage to us, and which, acting individually, we could not turn down without incurring the displeasure of our customers. It worked so well for us that I feel it can be used advantageously in towns, large or small, if you can get merchants to stick together on it.

#### Resolutions.

The following resolutions among others were presented and adopted:

We give our heartfelt thanks to the president, secretary and all officers of this association for their untiring efforts and faithful discharge of their duties in the past year.

Whereas, The trade and local press in the past year has shown by its liberal support to be heartily in sympathy with our efforts in this noble work; therefore, be it

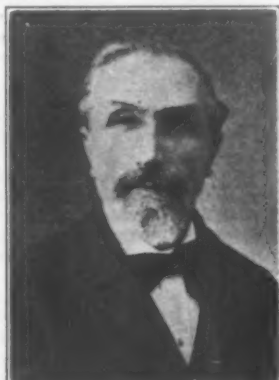
Resolved, That we offer our sincere thanks and appreciation for the same. We especially desire to thank *The Iron Age*, *Stoves and Hardware Reporter*, and *Implement Trade Journal* for their kind assistance.

As retail hardware dealers we believe the traveling salesman is our best friend, ever ready to help and advise, not only at our places of business but in our association work, for which we desire to express our appreciation, especially to F. P. Haus, for his kindly assistance to our secretary.

We offer our thanks to the Simmons Hardware Company for



R. H. MYERS.



F. A. KANSTEINER.

the elimination of its retail store, which should be appreciated by every member of this association.

We reaffirm our appreciation of the excellent work of S. Norvell, of the Joint Committee, in his labors for the correction of the catalogue house evil.

We desire to thank the manufacturers and jobbers who took part, for their liberal assistance and support in getting up our programme and manual.

We heartily indorse the proposed law now before the General Assembly, entitled "An Act for the Prevention of Fraud in Transfers of Stocks of Merchandise in Bulk."

We heartily approve and indorse the adoption of the 1-cent postage law now before Congress.

This association places itself on record as strongly and urgently favoring such amendments to the National Bankruptcy law as will prevent any one taking advantage of it to escape payment for necessities of life.

#### New Officers.

The Friday morning session was devoted largely to routine business, including the appointment of committees and election of officers. The following officers were elected for the ensuing year:

PRESIDENT, W. H. Hahn, St. Louis.

VICE-PRESIDENT, M. A. Wengert, Kansas City.

SECRETARY-TREASURER, Fred. D. Kansteiner, St. Louis.

The present secretary, Frederick Neudorff, will continue to serve in this capacity pending the adjustment of some special matters that he has now under way.

The present Executive Committee will remain unchanged in its personnel, W. T. Shoop, Richmond, being re-elected for a three year term. The committee is composed of the following members: O. W. Johnston, Marshall; F. A. Kansteiner, St. Louis; W. T. Shoop, Richmond. The Committee on Trade Abuse will for the coming year be constituted as follows: R. H. Myers, St. Louis; J. L. Boehl, St. Louis; A. B. Bondurant, Galt.

#### St. Louis Next Year.

The question of selection of a meeting place for next year's convention, instead of being left, as heretofore, to



O. W. JOHNSTON.



W. T. SHOOP.

the Executive Committee for determination at a later date, was voted on by the members as a body. Swayed by the strong appeals and pressing invitation extended by the St. Louis members, the convention unanimously voted that its next session be held in St. Louis. Resolutions were also adopted providing for the incorporation of the Missouri Retail Hardware Dealers' Association; and the secretary was given authority to make assessments upon members for the expenses of the organization when necessary.

#### Banquet.

An informal complimentary banquet was tendered to the members of the convention by S. Norvell of the Norvell-Shapleigh Hardware Company, St. Louis, at the Midland Hotel. It proved an enjoyable affair, and was participated in by nearly all of the members in attendance.

#### Members Present.

The following members of the association were in attendance at the meeting:

AREBELA.	BRUNSWICK.
J. L. Moore.	Tohann Fogging Hardware Co.
BETHANY.	CABOOL.
Bethany Hardware Co.	C. P. Patton.
W. C. Cole.	CARROLLTON.
Stubbs & Son.	N. Crouch.
BRECKENRIDGE.	C. G. Bowen.
John S. Cochran.	CLIFTON HILL.
BROOKFIELD.	E. Thurston.
M. C. Post.	CONCORDIA.
BROWNLEE.	Sodeman Hardware Co.
Harris & Faut.	



**FILLMORE.**  
D. C. Spicer.  
**FREDERICKSTOWN.**  
E. H. Bess.  
**GALT.**  
A. B. Bondurant.  
Wm. Hamann.  
Farmers' Hardware Co.  
**GOWNE.**  
George Jamison.  
**KANSAS CITY.**  
C. M. Keys.  
Wengert & Bishop.  
Simms-Ehlfeldt Hardware Co.  
Charles Kenison & Bros.  
H. J. Bruner Hardware Co.  
A. M. Hucke.  
James Redheffer.  
Ernest Stoeltzman.  
**MARSHALL.**  
O. W. Johnston.  
**MARIONVILLE.**  
W. L. Coleman.  
**MATSVILLE.**  
Bloom & Hensell.  
**MEADVILLE.**  
Abell & Loomis.  
**MEMPHIS.**  
Ben Morris.  
**PALMYRA.**  
Best Bros. Hardware Co.  
**RICHMOND.**  
W. T. Shoop.

**ROTHVILLE.**  
A. L. Shoop.  
**ST. JOSEPH.**  
Fred Neudorff.  
Parrish-Erickson Hardware Co.  
**ST. LOUIS.**  
George M. Rinnie.  
Hy. C. Hackman.  
F. W. Fruedewberg.  
R. H. Myers.  
Wm. H. Hahn.  
Boehl Hardware Co.  
John May.  
F. B. Kansteiner.  
G. A. Pauly.  
H. W. Ammon.  
Emil Wachter.  
Webb Hardware Co.  
Theo. C. Wirts.  
Sanner & Felter.  
**SALISBURY.**  
Hunker Hardware Co.  
**TRENTON.**  
G. A. Easterday.  
**TROY.**  
Ira L. Russell.  
**UDALE, KAN.**  
L. A. Hoop.  
**WARRENSBURG.**  
T. E. Hake Bros.  
**WESTON.**  
W. & W. J. Rumpel.  
**WEST PLAIN.**  
Ald Hardware Co.

### Exhibits.

The following exhibits and exhibitors were noted at the hotels and Convention Hall, where the displays were placed:

H. ADLER COMPANY, Carnegie, Pa.: Gas Stoves and Steel Ladder. Represented by D. Adler and J. A. Comstock.  
ALAMO MFG. COMPANY, Hillsdale, Mich.: Gas Engines. Represented by G. R. Morrison and G. E. Tubbs.  
AMERICAN STEEL & WIRE COMPANY, Chicago: Woven Wire. Souvenir, bandana handkerchief. Represented by A. O. Meeker.  
GEORGE H. BISHOP & Co., Cincinnati, Ohio: Saws. Represented by E. F. Coulter.  
BRIDGE & BEACH MFG. COMPANY, St. Louis, Mo.: Stoves and Ranges. Souvenir, comb, pencil and pen. Represented by Ralph S. Buck, Henry C. Hoener, John Le Page, Edward J. Fox, Karl W. Pfeffer, A. Weiskirch, Charles F. Corley and J. M. Hull.  
BUCK'S STOVE & RANGE COMPANY, St. Louis, Mo. Represented by Fred A. Spielman and L. A. Marson.  
CHADBORN & COLDWELL MFG. COMPANY, Newburg, N. Y.: Lawn Mowers. Represented by H. H. Wallis.  
CLEVELAND HARDWARE COMPANY, Cleveland, Ohio.: Pole and Shaft Couplers.  
COLUMBIAN HARDWARE COMPANY, Cleveland, Ohio: Hardware specialties. Souvenir, aluminum ink well. Represented by J. A. Cassell.  
CYCLONE FENCE COMPANY, Waukegan, Ill.: Wire Fence and Gates. Represented by I. P. Arthur, F. C. Bates and E. C. Arthur.  
DE LAVAL SEPARATOR COMPANY, Chicago: Creamery Supplies. Souvenir, pocket book and pin tray. Represented by D. A. Chapman, N. H. Gillilan, Charles E. Blair, C. R. Swisher and D. L. Harcourt.  
DENNING WIRE & FENCE COMPANY, Kansas City, Mo.: Souvenir, Paper Cutter and Tape Line. Represented by H. I. Mattson and S. M. Mattson.  
DETROIT STOVE WORKS, Detroit and Chicago: Souvenir, paper cutter and memorandum book. Represented by G. W. Johnston.  
DOYLE ECONOMY STOVE & FURNACE COMPANY, Detroit, Mich.: Represented by G. B. Smyth and Nell B. Dieterich.  
EXCELSIOR STOVE & MFG. COMPANY, Quincy, Ill.: Souvenir, dating stamp. Represented by H. Brown.  
FULLER-WARREN COMPANY, Milwaukee, Wis.: Souvenir, pocket book. Represented by C. H. Walters.  
GEE WHIZ MFG. COMPANY, Des Moines, Iowa: Washing Machines. Represented by F. S. Rowley.  
GLOBE STOVE & RANGE COMPANY, Kokomo, Ind.: Souvenir, dating stamp. Represented by C. R. Wilder, Frank S. Hawkins, W. S. Thorne and Mr. Marshall.  
HARRY TANK & CULBERT COMPANY, Kansas City, Mo.: Corrugated tanks and culverts. Represented by H. W. Harry.  
HERENDEN MFG. COMPANY, Geneva, N. Y.: Furman Hot Water Boilers. Represented by Wm. P. Matticks.  
L. A. Hoop, Udall, Kan.: Heavy Hardware. Represented by L. A. Hoop.  
IDEAL PUMP & MFG. COMPANY, Green City, Mo.: Represented by G. E. Green, A. J. Davidson and L. C. Milton.  
INDUSTRIAL IRON WORKS, Clinton, Iowa: Gas Engines. Represented by E. B. Brooks.  
KANSAS CITY BRUSH COMPANY, Kansas City, Mo.: Represented by A. J. Warren and M. W. Catchings.  
LASHER MFG. COMPANY, Davenport, Iowa: Kitchen Utensils. Souvenir, Plate Scraper. Represented by C. W. Lasher, Jr.

LINDSAY LIGHT COMPANY, Kansas City, Mo.: Gas Lighting Supplies. Souvenir, calendar. Represented by F. E. Nelson and E. F. Powers.  
LISLE MFG. COMPANY, Clarinda, Iowa: Cream Separator. Represented by E. R. Bailey and B. T. Quigley.  
MACGOWAN & FINIGAN FOUNDRY & MACHINE COMPANY, St. Louis, Mo.: Gas Engines and Machinery. Represented by W. McB. Smith and J. A. Yearly.  
MAJESTIC MFG. COMPANY, St. Louis, Mo.: Ranges. Souvenir, watch fob and stamp book. Represented by A. L. Ritter and R. L. Sare.  
MALLEABLE IRON RANGE COMPANY, Beaver Dam, Wis.: Monarch Ranges. Souvenir, ash tray, button and spoon. Represented by Fred W. Rogers and J. H. Hartzell.  
MALLEABLE STEEL RANGE COMPANY, South Bend, Ind.: Souvenir, watch fob. Represented by T. F. Bartlett and H. C. Fowler.  
NATIONAL CUTLERY COMPANY, Detroit, Mich.: Knives and Mechanics' Tools. Represented by M. N. Miller.  
NATIONAL STOVE COMPANY, St. Louis Division: Gas Stoves. Represented by H. C. Avery and Mr. Starry.  
NEVER BREAK RANGE COMPANY, St. Louis, Mo.: Represented by W. L. Vickers and P. S. Cannon.  
NORVELL-SHAPLEIGH HARDWARE COMPANY, St. Louis, Mo.: Souvenir, button. Represented by S. Norvell and F. E. Allyn.  
PHILIP CAREY MFG. COMPANY, Lockland, Ohio: Pipe Covering. Represented by C. M. Carpenter.  
PITTSBURGH STEEL COMPANY, Pittsburgh, Pa.: Steel Fence. Souvenir, nail puzzle and dictionary. Represented by R. E. Shaw and E. F. Russell.  
PREST HEATING COMPANY, Kansas City, Mo.: Furnaces. Souvenir, Iron Bank. Represented by J. R. Ranson and Charles M. Kemper.  
PREST-McMAHON FURNACE COMPANY, Kansas City, Mo.: Sunbeam Gas Radiators. Represented by J. D. McMahon.  
RATHBONE, SARD & Co., Aurora, Ill.: Acorn Stoves and Ranges. Represented by C. M. McKey and C. F. Dietrich.  
RELIABLE TOOL & SPECIALTY COMPANY, Louisiana, Mo.: Cold Chisels and Edge Tools. Represented by Frank W. Buffum.  
REPUBLIC METALWARE COMPANY, Buffalo, N. Y.: Savory Roaster. Represented by A. C. Brandon and Alfred Walker.  
RICHARDS & CONOVER HARDWARE COMPANY, Kansas City, Mo.  
ROCHESTER STAMPING COMPANY and ROBESON CUTLERY COMPANY, Rochester, N. Y.: Represented by J. G. Beegle, K. P. Law and H. F. Clay.  
RULLMAN-RULLMAN MFG. COMPANY, Wathena, Kan.: Wathena Washer. Represented by Messrs. Rullman and W. W. English.  
SEARLES BROS. WIND MILL & PUMP COMPANY, Kansas City, Mo.: Baker Wind Mill. Represented by John Baker and G. T. Bolman.  
J. F. SCHMELEZER & SONS ARMS COMPANY, Kansas City, Mo.: Sporting Goods. Represented by E. O. West and S. G. Gowing.  
SHERIDAN STOVE MFG. COMPANY, Quincy, Ill.: Souvenir, comb and "Missouri mule." Represented by H. B. Roth.  
SIMMONS HARDWARE COMPANY, St. Louis, Mo.: Represented by E. H. Simmons and staff.  
THOMAS WHITE STOVE COMPANY, Quincy, Ill.: Souvenir, watch charm and book mark. Represented by Thomas C. White and Henry Wilson.  
R. N. THOMAS, Shenandoah, Iowa: Corn Huskers. Represented by W. J. Staples.  
RINGEN STOVE COMPANY, St. Louis, Mo.: Quick Meal Stoves and Refrigerators. Represented by W. O. Lockwood, L. O. Bernicke, George A. Bainum and Wm. Rose.  
UNION METALLIC CARTRIDGE COMPANY, Bridgeport, Conn., and REMINGTON ARMS COMPANY, Ilion, N. Y.: Guns and Ammunition. Represented by R. C. Walker.  
UNITED STATES REGISTER COMPANY, Limited, Battle Creek, Mich.: Jones Side Wall Registers. Represented by Louis J. Glover.  
U. S. WATER & STEAM SUPPLY COMPANY, Batavia, Ill.: Windmills and Pumps. Represented by J. B. Martin.  
VERMONT FARM MACHINE COMPANY, Bellows Falls, Vt.: Dairy Supplies. Souvenir, gold medal. Represented by W. L. Brown, R. E. Jenkins and N. E. Gates.  
VICTOR MFG. COMPANY, Leavenworth, Kan.: Wonder Washer. Represented by F. G. Tallant, E. V. Allen and W. A. Thompson.  
WAHLE FOUNDRY & MACHINE COMPANY, Davenport, Iowa: Washing Machines. Souvenir, art novelty. Represented by H. H. Wahle and Anton Nelsen.  
WARNER FENCE COMPANY, Ottawa, Kan.: Wire Fence and Hammocks. Represented by John W. Gwynn, M. D. Edmiston and F. B. Vincent.  
JAMES H. WATSON COMPANY, Bradley, Ill.: Sheet Metal Products. Represented by W. L. Gilkey.  
WHITE LILY WASHER COMPANY, Davenport, Iowa: Washing Machines. Souvenir, washing machine ink well. Represented by Sam T. White, Theo. H. Rosche, A. F. Victor and L. G. Monton.  
WISE FURNACE COMPANY, Akron, Ohio: Souvenir, Owl Match Safe. Represented by W. G. Wise and W. G. Burks.  
WYETH HARDWARE & MFG. COMPANY, St. Joseph, Mo.: Harness and Saddles. Represented by W. H. Curtin.

The W. H. McCarthy Hardware Company, Charleston, Ill., has been incorporated with a capital of \$12,000. The business will embrace Hardware, Buggies and Farm Implements and Machinery.

## Idaho Hardware and Implement Convention.

THE Idaho Hardware and Implement Dealers' Association held its third annual convention at the Commercial Club's quarters, Boise, on the 4th and 5th of January. The meeting was called to order on the afternoon of the 4th by the president, A. B. Moss, of the Moss Mercantile Company, Payette. Hon. Willard White, member-elect of the Idaho Legislature, heartily welcomed the association to the city, and H. W. Wulff, of Haas Brothers, Weiser, made a felicitous response on behalf of the association.

### President Moss on the Association and Its Future.

President Moss, instead of making the usual annual address, made a few remarks in a general way in regard to the past work of the association and what it should try to accomplish in the future. He spoke, in part, as follows:

A plan is on foot to unite the different organizations in Pacific territory into a Pacific Federation, and at this meeting we will have to appoint delegates to attend a convention at Portland for that purpose. You can all easily see the results that will come from such an organization. In the past we have had trouble with jobbers who handle general lines of Hardware and implements, and who sell to men who do not always maintain prices, and so far we have been unable to regulate this matter to any great extent, but with a general northwestern association we can go to these jobbers and say to them that it is not to their interest to disturb prices in this or that community and they will have to listen to us, and in this way we will be able to maintain legitimate prices.

We should have some sort of an arrangement between the different towns in our jurisdiction to provide that no excess prices shall be charged on goods that we all carry in stock and to maintain a uniform schedule of prices on staple articles in keeping with the pocket books of our customers.

### PEDDLERS.

Then we must do something in regard to the peddlers. The peddlers who come into our State don't help to pay the taxes, they don't help to maintain our schools and other institutions, and they have nothing to do with our affairs. They bring a carload of stuff, buggies for instance, into the country and peddle them out through our territory and get business by taking long time notes and keep the trade away from the regular dealers, who are obliged to carry two or three carloads of buggies in stock all the time, and who have to pay taxes and help keep up the State.

### LEGISLATION.

We should have a committee appointed to look after legislative matters. The State Legislature is about to convene here, and we should have a good strong committee appointed to look after the affairs of the business men of southern Idaho and prevent adverse legislation. I don't wish to infuse my views into the minds of the members here present, but I believe it would be well to get some railroads into the State before we attempt to legislate about them and have a railroad commission to look after them. There are several railroads at our doors, and we don't want to do anything that will keep them away. Suppose one of you business men saw a man coming into your store, would you meet him at the door with a club and tell him that you'd like to have him come in all right, but he would have to come in the way you wanted him to come in? Of all the business that passes through our State only 6 per cent. of it originates within the State and 94 per cent. of it comes from other States. Now what more could a railroad commission do than regulate this 6 per cent.? Wouldn't it be a wise thing to get the railroads in here and then get a railroad commission to adjust the rates and such matters?

### Secretary's Report.

J. F. Cook's report as secretary was in part as follows:

The past year has been one of unsurpassed prosperity for the farmers in this section of the State; abundant crops of all grains, hay, fruits and the new crop of sugar beets have enabled our farmers to become good buyers. In this general prosperity the implement and Hardware people have shared to a greater or less extent, but does this prosperity bring them the gain it should? Are they receiving the profit on their goods that they should, and will these profits compare favorably with other lines?

If not, what is there that this association can do to bring about the desired results?

### CREDIT TERMS SHOULD BE SHORTENED.

One of the troubles to be overcome is the question of long credit. Are you satisfied with conditions as they are, and do you get action on your money? In other words, are your credit terms short enough to enable you to turn your money to advantage and allow you to take your cash discounts? It seems to us that the dealers have it in their power to regulate this matter of long time credit. Your margin of profits will get narrower each year; in order to make the profits that you should you will be obliged to double your sales and this, as you know, means more expense and a greater capital investment.

### LOCAL GATHERINGS.

In my report a year ago I advocated the advisability of the members in each town meeting regularly at least once a month. We find where this course has been pursued there has been very little friction between the members.

### MEMBERSHIP.

During the past year our membership has been increased by the addition of 20 new members. This gives us a total of 64, with a membership of 18 who are not in what may be called good standing on account of their not having paid their annual dues. We also have an honorary membership of 10 members. This latter contingent has become associated with us through the provision made in the amendment of the by-laws passed upon at our last quarterly meeting at Weiser in October.

In reviewing the work of the association for the past year we are called upon to state not only the success attending our efforts in the way of bringing about more harmony between the dealers in various towns and by so doing bettering their condition financially and socially, but also to record the discouraging features under which we have been obliged to work in many instances. It seems to be the history of organizations of this sort, the same as in any particular line of business, there are men who will hang back, pull in the opposite direction without taking the trouble to investigate, to find out for themselves whether or not there is any virtue in working together.

### KEEP PACE WITH CHANGING CONDITIONS.

We are living in an age of progression, not only in relation to the kinds of goods produced and the manner in which they are made, but also in the way in which they are marketed. If we would keep pace with the times we must adapt our business methods to fit the changing conditions. The old methods will no longer answer the purposes of the time. The necessity of convening, the working together, the adoption of good, sound business methods, are what spell success. The old methods are too selfish for present day use.

### Papers.

At the evening session F. C. Higgin of the Pacific Hardware & Steel Company, read a short paper on the "United Commercial Traveler," which was received with marked favor.

V. C. Kerr of the Kerr Hardware Company, Boise, read a paper on the "Credit System." He said that nowadays nearly everything that Hardwaremen handle is at some stage in its manufacture controlled by a trust and has an agreed price set upon it. Merchants are being called upon by manufacturers and jobbers to pay for their goods in shorter time. He thought that no longer time should be given for payment than the merchants themselves got from jobbers or manufacturers.

On the morning of the 5th a short session was held and several matters of moment to the association were taken up and considered. In the afternoon the members met in executive session at which the various committees, which had been appointed the day before, reported and resolutions were taken up for consideration.

### State Railroad Commission Not Favored.

A resolution was adopted declaring that the association was not in accord with the appointment of a State Railway Commission, that the results obtained by such commissions in other States were not commensurate with



the immense sums of money required for their support, and that in the opinion of the members a Shippers' Association, composed of producers and farmers and shippers generally, would be of more benefit to the State than a Railway Commission, reference being made to such an organization now existing in Wisconsin.

It was also recommended by one of the committees that each man present should write to his Representatives in Congress immediately on his return home and ask them to use their influence against the various parcels post bills up for consideration before Congress.

#### E. W. Evenson's Address.

E. W. Evenson, Spokane, Wash., secretary of the Inland Empire Implement and Hardware Dealers' Association, and who is also one of the men instrumental in bringing about the convention that is to meet in Portland in February for the purpose of organizing the Pacific Federation of Hardware and Implement Dealers' Associations, was called upon to explain the results which had been obtained by other Hardware dealers' associations throughout the country and what might be expected from the Pacific federation if it were formed, which he did in an interesting and forceful address.

The president and the secretary were afterward appointed as delegates to attend the Portland convention and it was left to the Executive Committee of the association to decide about joining the federation.

#### Uniform Prices on Staple Articles.

The question of making uniform prices on staple articles throughout all portions of the territory taking the same freight rates was then taken up and discussed thoroughly by all those present. A schedule of prices on certain articles was presented by one of the committees of the association and was adopted.

#### Other Resolutions.

A resolution was then presented and adopted recommending that the members in the extreme eastern part of the State be urged to form an organization of their own which would be under the direction of the general association.

A resolution was also adopted requesting Senator Heyburn, Senator DuBois and Representative French to use their influence against the various parcels post measures now up for consideration before Congress.

#### Election of Officers.

A. B. Moss, Payette, was re-elected president for another year. V. C. Kerr, Boise, was elected vice-president. J. F. Cook, Boise, was elected to succeed himself as secretary, and E. A. Fraser, Ontario, was re-elected as treasurer. Nampa was chosen as the next place of meeting.

#### Mutual Insurance.

At the evening session E. W. Evenson of Spokane, on the invitation of the chairman, spoke on the subject of mutual insurance. Mr. Evenson did not think it necessary or advisable for the association to form a company and commended the Inland Empire Association's company to the members, pointing out that their insurance could be more advantageously placed in this way. After a general discussion of the subject the convention adjourned.

The members were then entertained by the Commercial Club and later repaired to the Idan-ha Hotel, where they enjoyed a fine banquet tendered by the Boise members of the association.

### AMONG THE HARDWARE TRADE.

The Rosenthal Hardware Company, Batesville, Ark., succeeded to the wholesale and retail Hardware business of C. T. Rosenthal on January 1. The paid-in capital of the company, free from any incumbrances or debts, will be \$26,000. The incorporators are: C. T. Rosenthal, Carl Rosenthal and George Rosenthal.

The Hermitage Hardware Company, Hermitage, Ark., has been organized with a capital stock of \$20,000, of

which \$5000 has been subscribed, to engage in the retail Hardware and furniture business. A one-story building, 40 by 100 ft., will be built, and the company states that it will immediately lay in a complete stock of Hardware. The officers are: W. T. Graham, president; E. L. Bowe, vice-president, and R. H. Watson, secretary and treasurer; the above, with R. P. Graham and B. M. Rowe, making up the Board of Directors.

The Helm Hardware Company, Quincy, Ill., has been succeeded by the Helm-Merkel Company, recently incorporated with a capital of \$10,000.

The Hardware and Implement firm of Querry & Smith, Argenta, Ill., was succeeded on January 1 by F. R. Querry, who will continue business at the old stand and will carry the same lines as heretofore.

Adams Hardware Company, Port Townsend, Wash., has sold its business to F. J. Bailey, Willis Clark, G. H. Clark and W. J. Marshall, who will incorporate under the name of Olympic Hardware Company.

### MECHLING & DAYCOCK.

**M**ECHLING & DAYCOCK is the firm name of a partnership formed January 7 by H. E. Mechling and W. H. Daycock, Jr., with offices in the Fulton Market Bank Building, 81-83 Fulton street, New York. They will make a specialty of furnishing the trade with Sheet Metals and their products of every description, selling as brokers and commission men Iron and Steel materials particularly, in any quantity. They will also, as merchants, deal in any kind of manufactured merchandise whatsoever. W. H. Daycock, Jr., went with H. C. Mechling, father of H. E. Mechling, in 1888, and was associated with him when he became the representative of the Whitaker Iron Company, and later, on its formation, of the Wheeling Corrugating Company, his duties with the latter company for a great part of the time being assistant manager under H. C. Mechling, who met his death nearly two years ago in a railroad accident. H. E. Mechling has been associated with the same interests for about 10 years in his father's New York office.

### MISCELLANEOUS NOTES.

#### New Lambertville Reinforced Sarven Flange.

Lambertville Spoke Mfg. Company, Lambertville, N. J., is manufacturing a reinforced flange for Sarven wheels. This is especially recommended for use on heavy wheels in crowded cities, where there is more or less danger of vehicles coming in collision. The heavy flange tends to protect the hub and will in many cases save a wheel, where if it had been an ordinary light flange the wheel might be broken by running into some obstruction.

#### Black Eagle Hatchets.

The accompanying illustrations are of plain and claw head hatchets. The hatchet shown in Fig. 1 has a heavy strap head and the one in Fig. 2 has a hardened head. Both hatchets are finished in black enamel, with blades and heads polished. The blades are referred to as keeping their temper and as having fine cutting edges, and the



Fig. 1.—Black Eagle Plain Head Hatchet.

tools as suitable for all practical purposes. The hatchets are made with a view to combining strength, lightness

and durability, with all the best results for which hatchets are intended. The handle is formed up from sheet metal into a shape to produce the greatest possible amount of strength. The blades are made from high grade carbon steel carefully tempered in oil. The parts

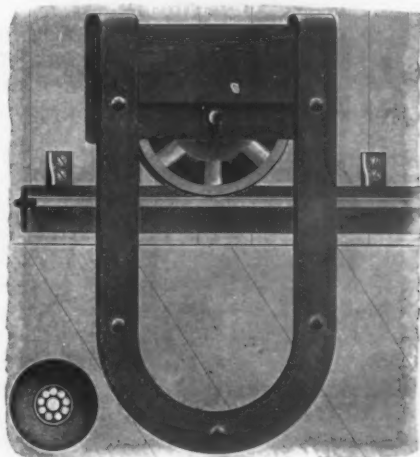


Fig. 2.—Black Eagle Claw Head Hatchet.

are held together by two heavy steel pins, which are riveted under a heavy pressure to make the parts absolutely immovable. The hatchets are offered by Burgess-Norton Mfg. Company, Geneva, Ill.

### The Peerless Roller Bearing Antifriction Barn Door Hanger.

Law Mfg. Company, Merriam Park, Minn., is offering the roller bearing antifriction barn door hanger shown



The Peerless Roller Bearing Antifriction Barn Door Hanger.

in the accompanying illustration. It has a sinuated steel wheel and the slotted frame is designed to allow the door to rise without the wheel being derailed.

### The Stanley Self-Chalking Line.

The accompanying illustrations relate to a self-chalking line offered by Parsons-Stanley Mfg. Company, 927 North Eleventh street, Philadelphia, Pa. The interior



Fig. 1.—The Stanley Self-Chalking Line.



Fig. 2.—Stanley Line Closed Ready for Use.

arrangement of the device is shown in Fig. 1, consisting of a reel containing 35 ft. of best four-ply line, which passes between two discs of chalk when the line is pulled out for use. There is a hole in the hinge end of the cover through which the line passes. On the end of the line is

a brass ring by which to draw it out of the case. After using the line is wound on the reel by the use of the winding handle. In Fig. 2 the device is shown closed, ready for use. New chalk can be added by removing the spring washer on the spindle. The case and interior metallic parts are made of cold pressed steel. When the cover is closed it is held shut by a spring clasp. The device is  $3\frac{3}{4}$  in. long,  $1\frac{7}{8}$  in. high and  $1\frac{1}{4}$  in. wide, being a convenient size to carry in the pocket. It is referred to by the manufacturer as having no complicated mechanism which might get out of order, as absolutely reliable, as snapping the line accurately and straight in one-quarter the time required in the usual way and as lasting for years. The device is packed, one each, in a paste-board box.

### B-W All Steel Coffee Mills.

The Bronson-Walton Company, Cleveland, Ohio, is putting on the market four all steel coffee mills, two of which are shown herewith. The Hiawatha, one of the



Fig. 1.—B-W Prospect All Steel Coffee Mill No. 103.

four, is the same style as that illustrated in Fig. 1, but the same height as the Tiger. The other one of the four mills is the same style as that shown in Fig. 2, but not so high. Thus the four styles include two flat tops and two oval tops, both styles in low and high mills. They are made without rivet, screw or bolt. The steel bottom, sides and top are pressed together by powerful machinery, so that they cannot be pulled apart, while the partition inside is seamed to the top and sides. Being



Fig. 2.—B-W Tiger All Steel Coffee Mill No. 100.

made of nonporous steel the mills preserve the aroma of the coffee. The mills are finished glossy black japan, with attractive transfer ornaments. The coarse or fine grinding is regulated by turning the thumbscrew beneath the handle.



### Favorite Reversible Ratchet Wrench.

Greene, Tweed & Co., 109 Duane street, New York, are now offering to the trade the Favorite reversible ratchet wrench, the different forms of which are here illustrated. Fig. 1 represents the wrench as made in



Fig. 1.—Favorite Reversible Ratchet Wrench with Heads and Sockets.

Nos. 1, 2, 2½ and 3, the length of the handle being 15 in. in the No. 1 size, and 28 in. each in the others. The handle is in one piece and without joints to weaken it. The reversing attachment is near the head, and so guarded as to prevent likelihood of injury. The heads are made to accommodate square nuts on one end and hexagon nuts on the other, or hexagon nuts on both ends, so constructed as to have the opening clear through the head, thus allowing the bolt to go through it and allowing a jam nut to be seated if desired. The little machine work on this wrench has greatly minimized its cost. The

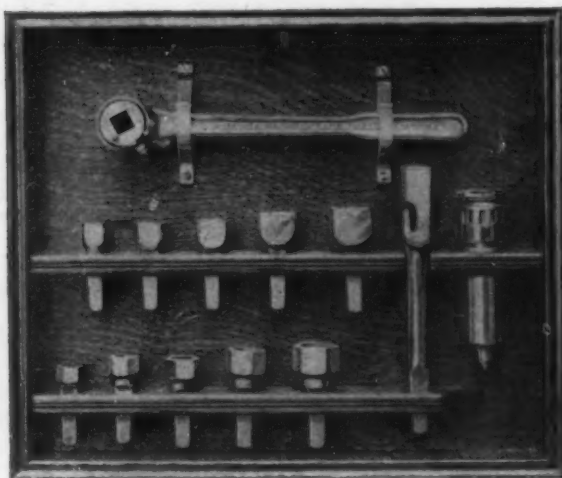


Fig. 2.—No. 0 Wrench and Attachments on Oak Board.

wrench with the open heads is particularly serviceable for engine builders, machine shops, bridge builders, contractors, and wherever heavy work is handled, and many nuts of uniform sizes are encountered. Some of the marked advantages of this construction are that the wrench entirely compasses the nut and prevents slipping and marring, this being especially important where new work is being assembled, or where nuts are being re-

moved from cylinders to be later replaced. It is also very serviceable in limited space, as a slight travel of the handle will catch one tooth of the ratchet and cause it to work. The movement can be reversed instantaneously by throwing over the lever. In seating or removing nuts the motion is continuous until the operation is completed, thus greatly economizing time. The No. 1 size takes three different heads, the No. 2 can be furnished with five heads and the Nos. 2½ and 3 three heads each, the openings of all in the regular sizes being designed to fit standardized nuts. One head accompanies each wrench regularly, but any or all of the various heads can be furnished according to a schedule of sizes giving detailed information and prices. There are also two extra heavy extension sockets 10 in. long for ¾-in. square and hexagon nuts, suitable for one of the heads of the No. 2 wrench. Fig. 2 illustrates the No. 0 wrench complete mounted on a well made oak wrench board suitable for hanging in an engine room, or the handle with any of the parts can be furnished, according to specification. This wrench is finished either in japan or nickel plate. The handle is 15 in. long and the sockets will fit U. S. standard square nuts for ¾, 7-16, ½, ⅝, and ¾ in. bolts, another set fitting hexagon nuts for the same sizes of bolts. In the complete set are an 8-in. extension socket and a 7-in. drill head for square shank drills only.

### Bommer Brothers' New Screen Door hinges.

Bommer Brothers, 255-271 Classon avenue, Brooklyn, N. Y., are putting on the market a new line of screen door hinges, shown herewith. They have adjustable ten-



Bommer Brothers' New Screen Door Hinges.

sion and covered springs, suitable for high class work where appearance, finish and enduring quality count. The hinges are made of steel, bronze and brass in all finishes, and are alluded to as not being too high in price.

### Pry Bar with Nail Puller and Box Opener.

The accompanying cuts show two tools offered by C. E. Bonner Mfg. Company, Chrisman, Ill. The pry bar and nail puller, shown in Fig. 1, is 23 in. long, drop



Fig. 1.—Pry Bar and Nail Puller.

forged from superior tool steel, and can be sharpened if desired to use as a chisel. The manufacturer remarks that the tool cannot break or wear out, and that it will

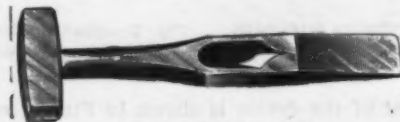


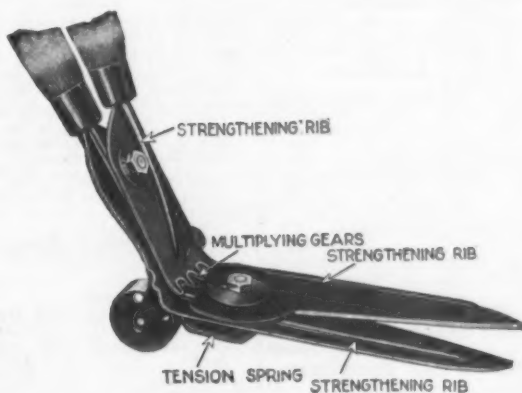
Fig. 2.—Box Opener.

not split, break or mar boards when used as a nail puller. It is recommended for use when taking down scaffolding, as nails can be taken out and boards pried

off as high as a carpenter can reach, without injuring the lumber, and nails are pulled straight out. The box opener, illustrated in Fig. 2, is drop forged, and 9 in. in length. It is designed for opening crates and boxes, and will drive or draw a shingle nail or a spike. Having a chisel point it is available for chopping ice.

### The Boston Grass Shears.

George P. Taylor & Co., Clinton, Mass., are putting on the market the Boston grass shears, designed for trimming about the edges of lawns and grass plots. They enable the operator to stand in an upright position, reducing to a minimum an arduous labor. The shears, as shown in the illustration with the handles cut away, have one blade stationary and the other movable. There is a geared multiplying motion between the movable blade and its operating handle, so that only a slight movement of the hand is required to open and close the blades. The



The Boston Grass Shears.

blades are kept together under a uniform tension by the use of an improved tension spring. The shears are made of a high grade crucible steel and all parts are hardened and strongly spring tempered in oil. The purpose of the spring temper is to enable the blades to spring apart when any hard substance, such as metal or stone, is caught between the blades or in any of the working parts. When the hard substance is removed the blades or parts will spring back to their original shape. All metal parts are reinforced by corrugated strengthening ribs.

### Ajax Toggle Bolt.

Ajax Line Material Company, Chicago, is putting on the market the new form of toggle bolt shown in Fig. 1. The feature of the device is that it has a U-shaped head piece pivoted to the nut with a provision for keeping this

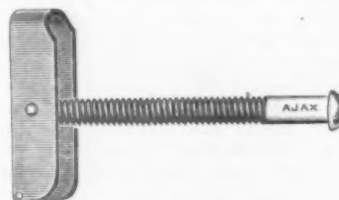


Fig. 1.—Ajax Toggle Bolt.

head parallel with the bolt, when it is being inserted, as shown in Fig. 2. After the head piece is pushed through, a half turn of the bolt causes the head to drop across the opening, thus affording an anchor, so that the bolt can be tightened up by the screw head on the outside end. When this has been done all surplus thread of the bolt is hidden in the wall, and only the neat, finished screw head is exposed. This the company explains saves the labor of

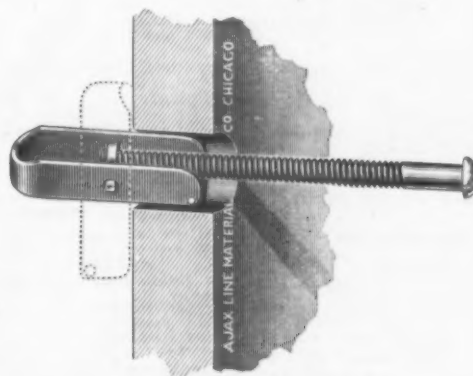


Fig. 2.—Ajax Toggle Bolt in Operation.

cutting off surplus thread if exposed on the outside and affords a much neater finish. The bolt is especially recommended to heating, plumbing and electrical contractors doing work in modern buildings.

## PAINTS, OILS AND COLORS

### Animal, Fish and Vegetable Oils—

Animal, Fish and Vegetable Oils—	per gal.
Linseed, City, raw.....	41 @42
City, Boiled.....	43 @44
State and Western, raw.....	30 @40
Raw Calcutta, in bbls.....	70 @
Lard, Extra Primo, Winter.....	76 @77
Extra No. 1.....	56 @51
No. 1.....	44 @46
Cotton-seed, Crude, f.o.b. mills.....	42 1/2 @42 3/4
Summer Yellow, Primo.....	41 @41 1/2
Summer White.....	40 @40 1/2
Sperm, Crude.....	52 @53
Natural Winter.....	62 @65
Bleached Winter.....	66 @69
Bleached Winter, Extra.....	70 @72
Tallow, Prime.....	54 @55
Whale, Crude.....	35 @36
Natural Winter.....	45 @46
Bleached Winter.....	47 @48
Extra Bleached Winter.....	49 @50
Menhaden, Brown, Strained.....	29 @32
Light, Strained.....	29 @32
Northern.....	28 @
Southern.....	27 @
Cocanut, Ceylon.....	10 1/2 @ 9 1/2
Cochin.....	10 @10
Cod, Domestic, Prime.....	30 @35
Newfoundland.....	34 @42
Red, Elaine.....	45 @48
Saponified.....	10 1/2 @ 9 1/2
Olive, Italian, bbls, Yellow.....	6 @75
Nutsfoot, Prime.....	49 @50
Palm, Lagos.....	10 1/2 @ 9 1/2

### Mineral Oils—

Black, 2 gravity, 25@30 cold test.....	10 1/2 @11 1/4
29 gravity, 15 cold test.....	11 1/4 @12 1/4
Summer.....	10 1/2 @11 1/4
Cylinder, light filtered.....	18 @19
Dark, filtered.....	18 @17
Paraffine, 903-997 gravity.....	12 1/2 @14
903 gravity.....	12 1/2 @14
883 gravity.....	10 1/2 @11 1/4
Red.....	12 1/2 @14

### Miscellaneous—

Barytes:	
White, Foreign.....	10 ton \$18.50 @20.00
Amer. floated.....	10 ton 19.00 @
Off color.....	10 ton 11.50 @15.50
Chalk, in bulk.....	10 ton 3.00 @ 3.25
In bbls.....	100 lb. 35 @
China Clay, English.....	10 ton 11.00 @17.50
Cobalt, Oxide.....	100 lb. 2.50 @ 2.60
Whiting, Commercial.....	100 lb. 43 @ 52
Gilders.....	100 lb. 55 @ 65
Ex. Gilders.....	100 lb. 60 @
Putty, Commercial—	100 lb.
In bladders.....	1.70 @1.85
In bbls, or tubs.....	1.20 @1.45
In 1 lb to 5 lb cans.....	2.65 @2.95
In 12 1/2 to 50 lb cans.....	1.50 @1.90
Spirits Turpentine—	per gal.
In Oil bbls.....	72 1/2 @73
In machine bbls.....	73 @73 1/2
Glue—	per lb.
Cabinet.....	12 @15
Common Bone.....	7 @ 9
Extra White.....	18 @24
Foot Stock, White.....	12 @14
Foot Stock, Brown.....	9 @11
German Hide.....	12 @18
French.....	10 @40
Irish.....	13 @16
Low Grade.....	10 @12
Medium White.....	14 @17
Gum Shellac—	per lb.
Bleached Commercial.....	47 @48
Bones, Dried.....	47 @58
Button.....	40 @50
Diamond.....	55 @
Fine Orange.....	52 @55
A. C. Garnet.....	44 @45
Kala Button.....	37 @38
D. C.....	59 @60
Octagon B.....	54 @
T. N.....	47 @48
V. S. O.....	56 @
Colors in Oil—	per lb.
Black, Lampblack.....	12 @14
Blue, Chinese.....	36 @46
Blue, Prussian.....	32 @36

Blue, Ultramarine.....	12 @16
Brown, Vandyke.....	11 @14
Green, Chrome.....	12 @16
Green, Paris.....	12 @24
Sienna, Raw.....	12 @15
Sienna, Burnt.....	12 @15
Umber, Raw.....	11 @14
Umber, Burnt.....	11 @14

### White Lead, Zinc, &c.—

Lead, American White:	
Lots of 500 lb or over, in Oil.....	7 1/2 @
Lots less than 500 lb, in Oil.....	8 @
Lead, English white, in Oil.....	9 1/2 @10
Lead, White, in oil, 25 lb tin pails, add to keg price.....	1 @ 1/2
Lead, White, in oil, 12 1/2 lb tin pails, add to keg price.....	1 @ 1
Lead, White, in oil, 1 to 5 lb cans, add to keg price.....	1 1/2 @
Lead, American, Terms: For lots 12 tons and over 1/4¢ rebate; and 2% for cash if paid in 15 days from date of invoice; for lots of 500 lbs. and over 2% for cash if paid in 15 days from date of invoice, for lots of less than 500 lbs. net.....	7 1/2 @
Zinc, American, dry.....	5 1/2 @ 5 1/2
Zinc, French:	
Antwerp, Red Seal, dry.....	8 1/2 @
Antwerp, Green Seal, dry.....	10 1/2 @
Paris, Red Seal, dry.....	9 1/2 @
Paris, Green Seal, dry.....	11 @
Zinc, V. M. French, in Poppy Oil:	
Green Seal:	
Lots of 1 ton and over.....	13 1/2 @13 1/2
Lots of less than 1 ton.....	13 1/2 @13 1/2
Zinc, V. M. French, in Poppy Oil:	
Red Seal:	
Lots of 1 ton and over.....	11 1/2 @12 1/2
Lots of less than 1 ton.....	12 1/2 @12 1/2
Discounts—French Zinc—Discounts to buyers of 10 bbl. lots of one or mixed grades, 1%: 25 bbls., 2%; 50 bbls., 4%.	
Dry Colors—	per lb.
Black, Carbon.....	6 1/2 @10
Black, Drop, American.....	4 @ 6
Black, Drop, English.....	5 @15

Black, Ivory.....	16 @20
Lamp, Com.....	4 @ 6
Blue, Celestial.....	4 @ 6
Blue, Chinese.....	30 @33
Blue, Prussian.....	28 @32
Blue, Ultramarine.....	4 1/2 @15
Brown, Spanish.....	1 1/2 @ 1
Carmine, No. 49.....	3.10 @3.25
Green, Chrome, ordinary.....	3 1/2 @ 7
Green, Chrome, pure.....	17 @25
Lead, Red, bbls., 1/2 bbls., kegs.....	7 1/2 @
Litharge, bbls., 1/2 bbls., kegs.....	7 1/2 @
Ocher, American.....	10 ton \$8.50 @10.00
American Golden.....	2 1/2 @ 3 1/2
French.....	1 1/2 @ 2
Foreign Golden.....	3 @ 4
Orange Mineral, English.....	10 @12
French.....	10 1/2 @12
German.....	8 1/2 @10
American.....	8 1/2 @8 1/2
Red, Indian, English.....	4 1/2 @ 6
American.....	3 @ 3 1/2
Red, Turkey, English.....	4 @10
Red, Tuscan, English.....	7 @10
Red, Venetian, Amer.....	100 lb \$0.50 @1.25
English.....	100 lb \$1.15 @1.75
Sienna, Italian, Burnt and Powdered.....	3 @ 9 1/2
Italian, Raw, Powdered.....	3 @ 7
American, Raw.....	1 1/2 @ 2
American Burnt and Pow'd.....	1 1/2 @ 2
Talc, French.....	10 ton \$17.00 @25.00
American.....	10 ton 17.00 @25.00
Terra Alba, French.....	100 lb. 90 @ 1.00
English.....	100 lb. 80 @ 1.00
American.....	100 lb. No. 1. 75 @ 90
American.....	100 lb. No. 2. 60 @ 85
Umber, Tkey, Bnt. & Pow'd.....	2 1/2 @ 3 1/2
Turkey, Raw and Powdered.....	2 1/2 @ 3 1/2
Burnt, American.....	1 1/2 @ 2
Raw, American.....	1 1/2 @ 2
Yellow Chrome.....	12 1/2 @15
Vermilion, American Lead.....	10 @25
Quicksilver, bulk.....	5 @
Quicksilver, bags.....	5 @6
English, Imported.....	5 @70
Chinese.....	\$0.90 @1.00



# Current Hardware Prices.

**General Goods.**—In the following quotations General Goods—that is, those which are made by more than one manufacturer—are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

**Special Goods.**—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

**Range of Prices.**—A range of prices is indicated by means of the symbol @. Thus 33% @ 33% & 10% signifies

that the price of the goods in question ranges from 33% per cent. discount to 33% and 10 per cent. discount.

**Names of Manufacturers.**—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE DIRECTORY, issued May, 1906, which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

**Standard Lists.**—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

**Additions and Corrections.**—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

## Adjusters, Blind—

Domestic,  $\frac{1}{2}$  doz. \$3.00.....33%  
North's.....10%  
Zimmerman's—See Fasteners, Blind.

## Window Stop—

Ives' Patent.....35%  
Taplin's Perfection.....35%

## Ammunition—See Caps, Cartridges, Shells, &c.

## Anti-Rattlers—

Fernald Mfg. Co. Burton Anti-Rattlers,  $\frac{1}{2}$  doz. pairs, Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

## Anvils—American—

Eagle Anvils..... $\frac{1}{2}$  doz. @ \$1.50  
Hay-Budden, Wrought..... $\frac{1}{2}$  doz. @ \$1.50  
Trenton..... $\frac{1}{2}$  doz. @ \$1.50

## Imported—

Peter Wright & Sons,  $\frac{1}{2}$  doz. @ \$1.50  
No. 11; 350 to 600 lb. 11%  
No. 12; 350 to 600 lb. 11%  
No. 13; 350 to 600 lb. 11%

## Anvil, Vise and Drill—

Millers Falls Co., \$12.00.....15%  
Apple, &c.

## Apple Parers—See Parers, Apple, &c.

## Aprons, Blacksmiths—

Livingston Nail Co.....33%

## Augers and Bits—

Com. Double Spur.....75%  
Jennings' Patn., reg. finish.....60%  
Black Lip or Blued.....65%  
Boring Mach. Augers.....70%  
Car Bits, 12-in. twist.....50%  
Ford's Auger and Car Bits.....45%  
Rt. Washington Auger Co., Concord's.....25%  
Fortner Pat. Auger Bits.....25%  
C. E. Jennings & Co.:  
No. 10 ext. lip, R. Jennings' list.....25%  
No. 30, R. Jennings' list.....40%  
Russell Jennings.....25%  
L'Hommedieu Car Bits.....15%  
Mayhew's Countersink Bits.....15%  
Pugh's Black.....20%  
Pugh's Jennings' Pattern.....35%  
Snell's Auger Bits.....50%  
Snell's Bell Hangers' Bits.....50%  
Snell's Car Bits, 12-in. twist.....50%  
Snell's King Auger Bits.....50%  
Wright's Jennings' Bits.....50%

## Bit Stock Drills—

See Drills, Twist.

## Expansive Bits—

Clark's small, 18; large, 23.....50%  
Clark's Pattern, No. 1,  $\frac{1}{2}$  doz. 23; No. 2, 18.....50%  
Ford's, Clark's Pattern.....60%  
C. E. Jennings & Co., Steer's Pat. 25; Lavigne Pat., small size, 18.00; large size, 23.00.....60%  
Swan's.....60%

## Gimlet Bits—

Common Dble. Out..... $\frac{1}{2}$  doz. \$3.00  
German Pattern, Nos. 1 to 10, \$4.75; 11 to 13, \$5.75

## Hollow Augers—

Bonney Pat., per doz. \$5.50 @ \$6.00  
Ames.....25%  
Universal.....25%  
Wood's Universal.....25%

## Ship Augers and Bits—

Ship Augers.....45%  
Ford's.....35%  
C. E. Jennings & Co.:  
L'Hommedieu's.....15%  
Watrous'.....35%  
Snell's.....60%

## Awl Hatts—See Handles, Mechanics' Tool.

## Awls—

Brad Awls:  
Handled.....gro. \$2.75 @ \$3.00  
Unhanded, Shltered.....gro. \$2.75 @ \$3.00  
Unhanded, Patent.....gro. \$2.75 @ \$3.00

## Peg Awls—

Unhanded, Patent.....gro. \$1.25 @ \$1.50  
Unhanded, Shltered.....gro. \$1.25 @ \$1.50

## Scratch Awls—

Handled, Com.....gro. \$3.50 @ \$4.00  
Handled, Socket.....gro. \$11.50 @ \$12.00

## Awl and Tool Sets—See Sets, Awl and Tool.

## Axes—

Single Bit, base weights: Per doz.  
First Quality.....\$1.75 @ \$2.00  
Second Quality.....\$1.25 @ \$1.50  
Double Bit, base weights:  
First Quality.....\$7.00 @ \$7.50  
Second Quality.....\$6.50 @ \$7.00

## Axle Grease—

See Grease, Axle

## Axles—

Concord, Loose Collar.....45%  
Concord, Solid Collar.....45%  
No. 1 Common, Loose.....35%  
No. 1 1/2 Com., New Styles.....45%  
No. 2 Solid Collar.....35%  
Half Patent:

Nos. 7, 8, 11 and 12.....70%  
Nos. 13 to 14.....70%  
Nos. 15 to 16.....75%  
Nos. 19 to 22.....75%

## Boxes, Axle—

Common and Concord, not turned lb., 4 1/2 @ 5 1/2  
Common and Concord, turned lb., 5 1/2 @ 6 1/2  
Half Patent.....lb., 9 1/2 @ 10 1/2

## Bait—

Hendrix:  
A Bait.....20%  
B Bait.....25%  
Competitor Bait.....20%

## Balances—

Caldwell new list.....50%  
Pullman.....50%  
Spring—

Spring Balances.....50%  
Chattillon's:  
Light Spg. Balances.....50%  
Straight Balances.....50%  
Circular Balances.....50%  
Large Dial.....50%

## Barb Wire—See Wire, Barb.

## Bars—

Steel Crowbars, 10 to 10 lb. per lb., 3 @ 3 1/2

## Towel—

No. 10 Ideal, Nickel Plate..... $\frac{1}{2}$  doz. \$3.50

## Beams, Scale—

Scale Beams.....40%  
Chattillon's No. 1.....40%  
Chattillon's No. 2.....40%

## Beaters, Carpet—

Holt-Lyon Co.:  
No. 12 Wire Coppered  $\frac{1}{2}$  doz. \$0.80; Tinned.....\$0.85  
No. 11 Wire Coppered  $\frac{1}{2}$  doz. \$1.15; Tinned.....\$1.20  
No. 10 Wire Tinned..... $\frac{1}{2}$  doz. \$1.50  
Western W. G. Co.:  
No. 1 Electric..... $\frac{1}{2}$  doz. \$7.50  
No. 2 Buffalo..... $\frac{1}{2}$  doz. \$9.00  
No. 3 Perfection Dust..... $\frac{1}{2}$  doz. \$8.00

## Egg—

Holt-Lyon Co.:  
Holt, per doz., No. 5, Jap'd, \$0.80; No. A, Jap'd, \$1.15; No. B, Jap'd, \$1.85; No. 6, Jap'd, \$1.65; Lyon, Jap'd, per doz., No. 2, \$1.35

## Taplin Mfg. Co.: Improved Dover, per gro., No. 60, \$4.00; No. 75, \$6.50; No. 100, \$7.00; No. 102, Tin'd, \$8.50; No. 150, Hotel, \$15.00; No. 152, Hotel Tin'd, \$17.00; No. 200, Tumbler, \$3.50; No. 202, Tumbler Tin'd, \$3.50; No. 300, Mammoth, per doz., \$25.00

## Turner & Seymour Mfg. Co.: T. & S. Dover.....\$6.00 Western W. G. Co., $\frac{1}{2}$ doz., Buffalo, No. 2, \$8.00; Perfection, No. 3, \$9.00 Wonder (R. M. Co.), $\frac{1}{2}$ doz., net, \$6.25

## Bellows—

Blacksmith, Standard List.....65%  
Split Leather.....60%  
Grain Leather.....60%

## Hand—

Inch.....6 7 8 9 10  
Doe.....\$5.50 6.15 6.60 7.15 7.70

## Molders—

Inch.....9 10 11 12 14  
Doe.....\$8.00 9.00 10.50 12.50 14.50

## Bells—Cow—

Ordinary Goods.....75%  
High grade.....70%  
Jersey.....75%  
Texas Star.....50%

## Door—

Abbe's Gong.....45%  
Barton Gong.....55%  
Home R. & E. Mfg. Co.'s.....55%  
Trip Gong.....50%  
Yankee Gong.....35%

## Hand—

Polished, Brass.....60%  
White Metal.....50%  
Nickel Plated.....50%

## Scissors.....50% Cone's Globe Hand Beis.....33% Silver Chime.....33%

## Miscellaneous—

Farm Bells.....lb., 2 1/2 @ 3 1/2  
Church and School.....60%  
Table Call Bells.....50%

## Belting—

Extra Heavy, Short Lap.....60%  
Regular Short Lap.....60%  
Standard.....70%  
Light Standard.....70%  
Cut Leather Lacing.....45%  
Leather Lacing Sides, per sq. ft. 25¢

## Rubber—

Agricultural (Low Grade).....75%  
Common Standard.....70%  
Standard.....60%  
Extra.....60%  
High Grade.....50%

## Bench Stops—

See Stops, Bench

## Benders and Upsetters, Tire—

Detroit Perfected Tire Bender.....40%  
Detroit Stoddard's Lightning Tire Upsetters, No. 1, \$1.25; No. 2, \$1.25; No. 3, \$1.50; No. 4, \$1.25; No. 5, \$2.50  
Green River Tire Benders and Upsetters.....20%

## Bicycle Goods—

John S. Lang's Son & Co.'s 1907 list:  
Chain, Parts, Spokes.....50%  
Tubes.....60%

## Bits—

Auger, Gimlet, Bit Stock Drills, &c.—See Augers and Bits.

## Blocks—Tackle—

Common Wooden.....75%  
Hartz St. Tackle Blocks.....50%  
B. & L. B. Co.:  
Boston Wood Snatch, 50%; Elipse Steel, 75%; Hollow Steel, 50%; Star Wire Rope, 50%; Tarbox Metal Snatch, 50%; Tarbox New Style Steel, 50%; Wire Rope Snatch, 50%;  
Lane's Patent Automatic Lock and Junior.....30%  
Stowell's Novelty, Mal. Iron.....50%  
Stowell's Loading.....50%  
See also Machines, Hoisting.

## Boards, Stove—

Zinc, Crystal, &c.....40%  
Paper Embossed.....40%

**Calipers—See Compasses.****Calks, Toe and Heel—**

Blunt, 1 prong... per lb. 44¢  
 Sharp, 1 prong... per lb. 44¢  
 Burke's Blunt, 4¢; Sharp, 4¢  
 Gautier, Blunt, 4¢; Sharp, 4¢  
 Perkins, Blunt, 4¢; Sharp, 4¢

**Can Openers—**

See Openers, Can.

**Cans, Milk—**

Illinois Pattern... 1.35 1.85 2.05 each.  
 New York Pattern... 1.50 2.20 2.45 each.  
 Baltimore Pattern... 1.50 2.20 2.45 each.  
 Duquesne... 1.35 1.80 1.75 each.

**Cans, Oil—**

Buffalo Family Oil Cans:  
 3 5 10 gal.  
 \$18.00 60.00 129.00 gro., net.

**Caps, Percussion—**

Eley's E. B. 58¢  
 G. D. 58¢  
 F. L. 58¢  
 G. B. 58¢  
 Musket 62¢

**Primers—**

Berdan Primers, \$2 per M. 20¢  
 Primer Shells and Bullets. 15¢  
 All other primers per M. \$1.52 @ 1.60

**Cartridges—**

Blank Cartridges:  
 32 C. F., \$5.50... 104¢  
 38 C. F., \$7.00... 104¢  
 22 cal. Rim, \$1.50... 104¢  
 32 cal. Rim, \$2.75... 104¢  
 B. B. Caps, Con. Ball, Sieged. \$1.50  
 B. B. Caps, Round Ball... \$1.49  
 Central Fire... 85¢  
 Target and Sporting Rifle. 15¢  
 Primed Shells and Bullets. 15¢  
 Rim Fire, Sporting... 50¢  
 Rim Fire, Military... 15¢

**Casters—**

Bed 70¢  
 Plate 60¢  
 Philadelphia 75¢  
 Acme, Ball Bearing... 33¢  
 Acme, Ball Bearing... 33¢  
 Boss Anti-Friction... 10¢  
 Boss Anti-Friction... 10¢  
 Gem (Roller Bearing)... 45¢  
 Martin's Patent (Phoenix)... 45¢  
 Standard Ball Bearing... 45¢  
 Tucker's Patent low list... 30¢  
 Yale (Double Wheel) low list... 60¢

**Cattle Leaders—**

See Leaders, Cattle.

**Chain, Coil—**

American Coil, Straight Link:  
 3-16 1/4 5-16 3/4 7-16 1/2 9-16  
 \$9.15 6.30 5.35 4.55 4.35 4.15 4.10  
 1/2 3/4 1 1-16 1 1/2 1 3/4 2 inch.  
 \$4.00 3.50 3.85 3.95  
 German Coil... 60¢ @ 10¢ @ 70¢

**Halter—**

Halter Chains... 60¢ @ 60¢  
 German Pattern Halter Chains  
 1st July 21, '97... 60¢ @ 10¢  
 Covert Mfg. Co. 35¢

**Cow Ties—**

See Halters and Ties.

**Trace, Wagon, &c.—**

Traces, Western Standard: 100 pr.  
 6-3, Straight, with ring. \$27.00  
 6-3, 2, Straight, with ring. \$23.00  
 6-3, 2, Straight, with ring. \$23.00  
 6-3, 2, Straight, with ring. \$23.00

NOTE—Add 20¢ per pair for Hooks.  
 Twist Traces: add per pair for Nos. 2  
 and 3, 30¢; No. 1, 40¢; No. 4, 40¢ to price  
 of Straight Link.

Eastern Standard Traces, Wag-  
 on Chain, &c... 60¢ @ 5¢

**Miscellaneous—**

Jack Chain, list July 10, '93:  
 Iron... 60¢ @ 10¢  
 Brass... 60¢ @ 10¢  
 Safety and Plumbers' Chain. 70¢  
 Gal. Pump Chain... 10¢ @ 4¢  
 Covert Mfg. Co.:  
 Breast, Halter, Heel, Rein, Stal-  
 lion... 40¢  
 Oneida Community:  
 American Halter, Dog and Kennel  
 Chains... 35¢ @ 2¢ @ 40¢  
 Niagara Dog Leads and Kennel  
 Chains... 45¢ @ 60¢ @ 5¢  
 Wire Goods Co.:  
 Dog Chain... 70¢ @ 10¢  
 Universal Dbl.-Jointed Chain... 50¢

**Chain and Ribbon, Sash—**

Oneida Community:  
 Copper Chain, 60¢ @ 3¢; Steel Chain,  
 60¢

Pullman:  
 Bronze Chain, 60¢; Steel Chain,  
 60¢ @ 10¢  
 Sash Chain Attachments, per set. 8¢  
 Aluminum Sash Ribbon, per 100  
 ft. \$1.25 @ \$3.00  
 Sash Ribbon Attachments, per set. 8¢

**Chalk—(From Jobbers.)**

Carpenters' Blue... gro., 50¢ @ 55¢  
 Carpenters' Red... gro., 45¢ @ 50¢  
 Carpenters' White... gro., 40¢ @ 45¢

**Checks, Door—**

Bardsley's... 45¢  
 Pullman, per gro... 35¢ @ 10¢  
 Ruswin... 35¢ @ 4¢

**Chests, Tool—**

American Tool Chest Co.:  
 Boys' Chests, with Tools... 55¢  
 Youths' Chests, with Tools... 40¢  
 Gentlemen's Chests, with Tools... 30¢  
 Farmers' Carpenters' etc., Chests,  
 with Tools... 30¢

**Machinists' and Pipe Fitters'**

Chests, Empty... 50¢  
 Tool Cabinets... 50¢  
 C. E. Jennings & Co.'s Machinists'  
 Tool Chests... 35¢ @ 10¢

**Chisels—****Socket Framing and Firmer**

Standard List... 75¢ @ 75¢  
 Buck Bros... 30¢  
 Charles Buck Edge Tool Co... 30¢  
 C. E. Jennings & Co.:  
 Socket Firmer No. 10... 60¢  
 Socket Framing No. 15... 75¢  
 Swan's... 75¢  
 L. & I. J. White Co... 30¢ @ 30¢ @ 5¢

**Tanged—**

Tanged Firmers... 40¢  
 Buck Bros... 30¢  
 Charles Buck Edge Tool Co... 30¢  
 C. E. Jennings & Co. Nos. 191, 181, 25¢  
 L. & I. J. White Co... 25¢ @ 5¢

**Cold—**

Cold Chisels, good quality. 13¢ @ 15¢  
 Cold Chisels, fair quality. 11¢ @ 12¢  
 Cold Chisels, ordinary... 9¢ @ 10¢

**Chucks—**

Almond Drill Chucks... 35¢  
 Almond Turret Six-Tool Chuck... 40¢  
 Reach Pat., each \$8.00... 35¢ @ 5¢  
 Empire... 25¢  
 Blacksmiths... 25¢  
 Jacob's Drill Chucks... 25¢  
 Pratt's Positive Drive... 25¢  
 Skinner Patent Chucks:  
 Independent Lathe Chucks... 40¢  
 Universal, Reversible Jaws... 40¢  
 Combination, Reversible Jaws... 40¢  
 Drill Chucks, New Model... 25¢  
 Standard, 40¢ @ 10¢; Skinner Pat.  
 25¢; Positive Drive... 40¢  
 Planer Chucks... 30¢  
 Face Plate Jaws... 40¢  
 Standard Tool Co.:  
 Improved Drill Chuck... 45¢  
 Union... 40¢  
 Combination, Nos. 1, 2, 3, 4, 5, 6,  
 7, 8 and 17, 40¢; No. 21... 35¢  
 Scroll Combination, Nos. 23 and  
 24... 30¢  
 Geared Scroll, Nos. 33, 34 and 35... 30¢  
 Independent Iron, Nos. 18 and 18.35... 35¢  
 Independent Steel, No. 61... 35¢  
 Union Drill, Nos. 000, 00, 100, 101,  
 102, 103, 104... 35¢  
 Union Gear Drill... 25¢  
 Universal 11, 12, 16, 17, 13, 14, 15... 35¢  
 Universal, No. 42... 30¢  
 Iron Face Plate Jaws, Nos. 28, 30,  
 48 and 50... 35¢  
 Steel Face Plate Jaws, Nos. 70 and  
 72... 30¢  
 Westcott Patent Chucks:  
 Lathe Chucks... 50¢  
 Little Giant Auxiliary Drill... 50¢  
 Little Giant Double Grip Drill... 50¢  
 Little Giant Drill, Improved... 50¢  
 Oneida Drill... 50¢  
 Scroll Combination Lathe... 50¢

**Clamps—**

Adjustable, Hammers... 20¢ @ 20¢  
 Carriage Makers, P. S. & W.  
 Co... 40¢ @ 10¢ @ 50¢  
 Realy, Paragon... 35¢ @ 10¢  
 Lineman's, Utica Drop Forge & Tool  
 Co... 40¢  
 Wood Workers, Hammers... 40¢ @ 10¢  
 Saw Clamps, see Vises, Saw Filers.

**Cleaners, Drain—**

Iwan's Champion, Adjustable... 55¢  
 Iwan's Champion, Stationary... 45¢

**Sidewalk—**

Star Socket, All Steel... 40¢ @ 5¢ net  
 Star Shank, All Steel... 35¢ @ 24¢ net  
 W. & C. Shank, All Steel... 40¢  
 7 1/2 in., \$3.00; 8 in., \$3.25

**Cleavers, Butchers'—**

Foster Bros... 30¢  
 Fayette R. Plumb... 30¢  
 L. & I. J. White Co... 30¢

**Clippers, Horse and****Sheep—**

Chicago Flexible Shaft Company:  
 1902 Chicago Horse, each... \$10.75  
 20th Century Horse, each... \$5.00  
 Lightning Belt Horse, each... \$15.00  
 Chicago Belt Horse, each... \$20.00  
 Stewart's Enclosed Gear  
 Horse, each... \$9.75  
 Stewart's Patent Sheep Shear-  
 ing Machine, each... \$12.75  
 Stewart Enclosed Gear Shear-  
 ing Machine, No. 8, each... \$9.75

**Clips, Axle—**

Regular Styles, list July 1, '05. 80¢

**Cloth and Netting, Wire**

—See Wire, &amp;c.

**Cocks, Brass—**

Hardware list:  
 Plain Bibbs, Globe, Kerosene,  
 Racking, Liquor, Bottling,  
 &c... 70¢  
 Compression Bibbs... 65¢ @ 10¢

**Coffee Mills—**

See Mills, Coffee.

**Collars, Dog—**

Nickel Chain, Walter B. Stevens &  
 Son's list... 40¢  
 Leather, Walter B. Stevens & Son's  
 list... 40¢

**Combs, Curry—**

Metal Stamping Co... 40¢  
 Ordinary Goods... 70¢ @ 10¢ @ 75¢  
 Wm. Schollhorn Co.:  
 Excelsior Dividers... 55¢  
 Lock Dividers... 75¢

**Conductor Pipe—**

L. C. L. to Dealers:  
 Galvanized  
 Steel. Charcoal Copper.  
 Iron. 1 1/2, 1 3/4 @ 10¢ @ 10¢  
 Eastern:  
 70¢ @ 10¢ 60% 30¢ @ 10%

**Central:**

65¢ @ 12 1/2% 55¢ @ 5% 30¢ @ 7 1/2%  
 Western and Southern:  
 65¢ @ 7 1/2% 55% 30¢ @ 5%

**So. Western**

62 1/2¢ @ 5% 50¢ @ 2 1/2% 30¢ @ 2 1/2%  
 Terms, 60 days; 2% cash 10 days. Fac-  
 tory shipments generally delivered.  
 See also Eave Troughs.

**Coolers, Water—**

Gal, each... 2 3 4 6 8  
 Labrador... \$1.20 \$1.50 \$1.80 \$2.10 \$2.70  
 Gal... 3 4 6 8  
 Iceland, ea. \$1.80 \$2.10 \$2.40 \$3.00  
 Gal... 2 3 4 6 8  
 Galvanized, ea. \$1.85 \$2.00 \$2.25 \$2.90 \$3.90  
 Galvanized, Lined, side handles,  
 Gal... 3 4 6 8  
 Each... \$1.95 \$2.15 \$2.40 \$3.30 \$4.15  
 White Enameled, 25%; Agate Lined, 25%

**Coopers' Tools—**

See Tools, Coopers'.

**Coppers' Soldering—**

Soldering Coppers, 3 lbs. to pair  
 and heavier, 25¢ @ 32¢; lighter  
 than 3 lb. to pair... 31¢ @ 33¢

**Cord— Sash—**

Braided, Drab... 10¢ @ 35¢  
 Braided, White, Com., Nos. 8  
 to 12, 25¢; No. 7, 25¢; No. 6,  
 25¢  
 Cable Laid Italian, lb., No. 18, 36¢

Italian, lb., A, No. 18, 25¢; B, 21¢  
 Common India... lb. 10¢ @ 10 1/2¢  
 Cotton Sash Cord, Twisted... 70¢ @ 13¢  
 Patent Russia... lb. 19¢  
 Cable Laid Russia... lb. 20¢  
 India Hemp, Twisted... lb. 12¢ @ 13¢  
 Patent India, Twisted... lb. 16¢  
 Anniston Cordage Co.: 3 lb. solid  
 Braided, Nos. 8 to 12, \$0.24; No. 7,  
 \$0.24 1/2; No. 6, \$0.25 1/2; 3 doz., 50 ft.,  
 \$1.10; 60 ft., 3-Thread, \$0.95; 50 ft.,  
 Manila, \$1.40; 60 ft., Jute, \$0.75.  
 Pearl Braided cotton, No. 6, 3 lb. 10¢,  
 25¢; No. 7, 25¢; Nos. 8 to 12, 24¢  
 Eddystone, Braided, Nos. 8 to 12,  
 26¢; 7, 26¢; 6, 27¢  
 Harmony Cable Laid Italian, Nos. 7  
 to 10... 10¢ @ 23¢  
 Pullman:  
 Wire Sash Cord... 18¢  
 Sash Cord Attachments, per doz. 10¢  
 Samson, Nos. 8 to 12:  
 Braided, 3 lb., Drab Cotton,  
 55¢; Italian Hemp, 40¢ @ 50¢  
 50¢; Lined, 55¢; White Cot-  
 ton, 50¢; Spot Cord... 50¢  
 Massachusetts, White... lb 40¢  
 Massachusetts, Drab... lb 45¢  
 No. 7, 25¢; No. 6, 30¢  
 Phoenix, White, Nos. 8 to 12, 27¢;  
 Silver Lake, per lb.:  
 A, Drab, 45¢; A, White, 40¢;  
 B, Drab, 40¢; B, White, 35¢;  
 Italian Hemp, 40¢; Lined... 57¢  
 See also Chain and Ribbon.

**Wire, Picture—**

List July 10, 1906... 85¢ @ 10¢ @ 10¢  
 Hendryx Standard Wire Picture Cord,  
 old list, 85¢ @ 10¢  
 Turner & Stanton Co. Wire Picture  
 Cord... 90¢

**Cradles—**

White Round Crayons, Cases, 100  
 gro., \$5.50 @ \$7.50 at factory, but  
 lower prices made by jobbers

**Crayons—**

White and Purple, Indelible... \$7.50  
 Blue, Red, Green, Yellow and  
 Terra Cotta, \$8.50; Black... \$1.00  
 Giant Lumber, 5 1/4 in. x 15 in. in-  
 round, all colors, \$16.25; Indel-  
 ible... \$18.75  
 Genuine Soapstone, Metal Workers',  
 5 in. x 1/4 in. Round, \$2.50; 5 in. x  
 1/4 in. Square, \$1.75; 5 x 1/4 x 3-16,  
 \$2.50; 5 x 1/4 x 3-16... \$3.00

**Crooks, Shepherds'—**

Fort Madison, per doz., Heavy, \$7.00;  
 Light... \$6.50

**Crow Bars—See Bars, Crow.****Cultivators—**

Victor Garden... 50¢

**Cutlery, Table—**

International Silver Company:  
 No. 12 M'd'm Knives, 1847, 3 doz. \$3.50  
 Star, Eagle, Rogers & Hamilton  
 and Anchor... 3 doz. \$3.00  
 Wm. Rogers & Son... 3 doz. \$2.50

**Cutters— Glass—**

H. H. Mayhew Co... 40¢  
 Red Devil... 50¢  
 Smith & Hemenway Co... 40¢  
 Woodward... 40¢

**Meat and Food—**

American... 30¢  
 Nos. 401 402 403 404 405 406 407  
 Each... \$5 \$7 \$10 \$12 \$25 \$50 \$60  
 Enterprise:  
 Nos. 5 10 12 22 32  
 Each... \$2 \$3 \$7.50 \$1.50 \$6 25¢ @ 7 1/2¢  
 No. 202, \$1.50... 10¢ @ 7 1/2¢  
 Dixon's... 1 2 3 4  
 Nos... \$14.00 \$17.00 \$19.00 \$30.00  
 Ideal... 40¢ @ 40¢ @ 5¢  
 Little Giant... 40¢ @ 50¢  
 Nos... 30 310 315 320 322  
 Each... \$35 \$48.00 \$14.00 \$72.00 \$68.00  
 N. E. Food Choppers... 25¢  
 New Triumph No. 605, 3 doz. \$24.00,  
 40¢ @ 50¢  
 Ruswin Food, No. 1, \$24.00; No. 2,  
 \$27.00... 45¢ @ 10¢ @ 10¢  
 Woodruff's... 100 150  
 Nos... \$15.00 \$18.00  
 Enterprise Beef Shavers... 25¢ @ 30¢

**Slaw and Kraut—**

Henry Disston & Sons:  
 Slaw and Kraut Cutters... 35¢  
 Corn Graters... 30¢  
 J. M. Mast Mfg. Co.:  
 Slaw Cutters, 1 Knife... 30¢  
 Combined Slaw Cutter and Corn  
 Grater... 40¢  
 Tucker & Dorsey Mfg. Co.:  
 Kraut Cutters, 1 Knife... 40¢  
 Slaw Cutters, 2 Knives... 40¢  
 Slaw Cutters, 2 Knives... 40¢

**Tobacco—**

All Iron, Cheap... doz. \$4.25 @ \$4.50  
 Enterprise... 25¢ @ 30¢  
 National, 3 doz., No. 1, \$21; No. 2,  
 \$18... 40¢

**Diggers, Post Hole, &c.—**

Disston's:  
 Rapid, 3 doz., \$24.00... 25¢  
 Samson, 3 doz., \$34.00... 25¢  
 Iwan's Improved Post Hole Auger, 40¢ @ 5¢  
 Vaughan Pattern Post Hole Augers,  
 3 doz... 36¢  
 Perfection Post Hole Diggers,  
 3 doz... 38¢  
 Split Handle Post Hole Diggers,  
 3 doz... 37¢  
 Kohler's, 3 doz., Universal, \$14.00;  
 Little Giant, \$12.00; Hercules,  
 \$10.00; Invincible, \$5.00; Rival,  
 \$3.00; Pioneer... \$7.00  
 Never-Break Post Hole Diggers,  
 3 doz., \$24.00... 60¢  
 Dividers—See Compasses.

**Drawers, Money—**

Tucker's Pat. Alarm Till No. 1, 3  
 doz., \$18; No. 2, \$15; No. 3, \$12;  
 No. 4, \$18.

**Drawing Knives—**

See Knives, Drawing.

**Dressers, Emery Wheel—**

Sterling Emery Wheel Dressers... 35¢  
 Sterling Wheel Dresser Cutters... 35¢

**Drills and Drill Stocks—**

Blacksmiths' Common Drilling  
 Machines... \$1.50 @ \$1.75  
 Breast, Millers Falls... 15¢ @ 10¢  
 Breast, P. S. & W... 15¢ @ 10¢  
 Goodell Automatic Drills, 50¢ @ 60¢ @ 10¢  
 Johnson's Automatic Drills, Nos. 2  
 and 3... 10¢  
 Johnson's Drill Points... 10¢  
 Millers Falls Automatic Drills, 35¢ @ 10¢  
 Hatchet, Curtis & Curtis... 25¢  
 Hatchet, Parker's... 40¢  
 Hatchet, Weston's... 40¢  
 Hatchet, Weston's, Style H Im-  
 proved... 40¢  
 Hatchet, No. 012... 40¢  
 Hatchet, Celebrated... 40¢  
 Hatchet, Whitney's, P. S. & W. 50¢  
 Whitney's Hand Drill, No. 1, \$10.00;  
 Adjustable, No. 10, \$12.00... 33¢ @ 10¢

**Twist Drills—**

Bit Stock... 60¢ @ 10¢ @ 10¢ @ 70¢  
 Taper and Straight Shank...  
 60¢ @ 10¢ @ 60¢ @ 10¢ @ 45¢

**Drivers, Screw—**

Screw Driver Bits, per doz. 45¢ @ 50¢  
 Balsey's Screw Holder and Driver...  
 doz., 2 1/2 in., \$6; 4 in., \$7.50; 6 in.,  
 \$10... 50¢  
 Buck Bros. Screw Driver Bits... 30¢  
 Champion... 50¢  
 Disston's... 70¢  
 Edison... 60¢  
 Fray's Hol. H'die Bits, No. 1, \$12.50  
 Ford's Brace Screw Drivers... 40¢ @ 10¢  
 Gay's Double Action Ratchet... 35¢  
 Goodell's Auto... 65¢ @ 65¢ @ 10¢  
 Mayhew's Black Handle... 40¢  
 Mayhew's Monarch... 40¢  
 Millers Falls, Nos. 20 and 21, 25¢ @ 10¢  
 Millers Falls, Nos. 11, 12, 41, 42, 15¢ @ 10¢  
 New England Specialty Co... 30¢  
 Smith & Hemenway Co., Never-  
 turn, 40¢ @ 5¢; Elmora... 50¢  
 H. D. Smith & Co.'s Perfect H'die, 40¢  
 Stanley R. & L. Co.:  
 No. 64, Varn. Handles, 60¢ @ 10¢; No.  
 85, 70¢; Defiance, 70¢; Hurwood,  
 55¢  
 Swan's:  
 Nos. 7565 to 7568, 50¢; No. 7540,  
 40¢ @ 10¢

**Eave Trough, Galvanized—**

Territory. L. C. L. Galvanized  
 Galv. Charcoal Copper.  
 Steel. Iron. 1 1/2, 1 3/4 @ 10¢ @ 10¢

**Eastern:**

70¢ @ 30¢ @ 1/2% 70¢ @ 2 1/2% 30¢ @ 10%  
 Central:  
 75¢ @ 10¢ 65¢ @ 12 1/2% 30¢ @ 7 1/2%  
 Western and Southern:  
 75¢ @ 10% 60¢ @ 15% 30¢ @ 5%  
 So. Western:  
 75¢ @ 2 1/2% 65% 30¢ @ 2 1/2%

Terms—2% for cash. Factory ship-  
 ments generally delivered.  
 See also



**Extractors, Lemon Juice**

—See Squeezers, Lemon.  
**Fasteners, Blind—**

Zimmerman's ..... 50¢10¢  
Wallings ..... 40¢10¢

**Cord and Weight—**

Ives ..... 33%

**Faucets—**

Cork Lined ..... 50¢50¢10¢  
Metallic Key, Leather Lined ..... 60¢10¢70¢

Red Cedar ..... 40¢10¢50¢  
Petroleum ..... 70¢10¢75¢

B. & L. B. Co.: ..... 60¢10¢

Star ..... 50¢10¢

West Lock ..... 50¢10¢

John Sommer's Peerless Tin Key ..... 50¢

John Sommer's Boss Tin Key ..... 50¢

John Sommer's Victor Mtl. Key ..... 50¢10¢

John Sommer's Duplex Metal Key ..... 60¢

John Sommer's Diamond Lock ..... 40¢

John Sommer's X. L. Cork Lined ..... 50¢

John Sommer's Reliable Cork Lined ..... 50¢10¢

John Sommer's Chicago Cork Lined ..... 50¢

John Sommer's O. K. Cork Lined ..... 50¢

John Sommer's No Brand, Cedar ..... 40¢

John Sommer's K. L. Cork Lined ..... 50¢

McKenna, Brass: ..... 25¢

Burglar Proof, N. P. ..... 25¢

Improved, 1/4 and 1/2 inch ..... 25¢

Self Measuring: ..... 40¢10¢

Enterprise, 1/2 doz. \$36.00 ..... 40¢10¢

Lane's, 1/2 doz. \$36.00 ..... 40¢10¢

National Measuring, 1/2 doz. \$36.00 ..... 40¢10¢

**Felice Plates—**

See Plates, Felice.

**Files— Domestic—**

List Nov. 1, 1899.

Best Brands ..... 70¢10¢75¢10¢

Standard Brands ..... 75¢10¢75¢10¢10¢

Lower Grade ..... 75¢10¢10¢80¢10¢

**Imported—**

Stubs' Tapers, Stubs' List, July

24, '97 ..... 33 1-3 to 40%

**Fixtures, Fire Door—**

Richards Mfg. Co.: ..... 104

Universal, No. 103; Special, No. 104 ..... 37.75

Fusible Links, No. 96 ..... 50¢

Expansion Bolts, No. 117 ..... 60¢10¢

**Grindstone—**

Inch ..... 15 17 19 21

Per doz. .... \$2.25 3.75 4.25 4.75

P. S. & W. Co. .... 30¢10¢

Reading Hardware Co. .... 60¢

Stowell's Giant Grindstone Hanger ..... 50¢

Stowell's Grindstone Fixtures, Extra

Heavy, 40¢10¢; Light ..... 50¢

**Fodder Squeezers—**

See Compressors.

**Forks—**

NOTE.—Manufacturers are

selling from the list of September

1, 1904, but many fobbers are still

using list of August 1, 1899, or

selling at net prices.

Iowa Dig-Ezy Potato ..... 60¢10¢

Victor, Hay ..... 60¢15¢25¢

Victor, Manure ..... 60¢

Victor, Header ..... 60¢

Champion, Hay ..... 60¢

Champion, Header ..... 60¢

Champion, Manure ..... 60¢15¢25¢

Columbia, Hay ..... 60¢20¢

Columbia, Manure ..... 70¢

Columbia, Spading ..... 70¢15¢

Hawkeye Wood Barley ..... 60¢10¢

W. & C. Potato Digger ..... 60¢10¢

Acme Hay ..... 60¢20¢

Acme Manure, 4 tine ..... 60¢20¢

Dakota Steel Barley ..... 60¢20¢

Jackson Steel Barley ..... 60¢20¢

Kansas Header ..... 60¢

W. & C. Favorite Wood Barley ..... 60¢

Plated.—See Spoons.

**Frames— Saw—**

White, 8'x1' Bar, per doz. 75¢80¢

Red, 8'x1' Bar, per doz. \$1.00\$1.25

Red, Dbl. Brace, per doz. \$1.40\$1.50

**Freezers, Ice Cream—**

Qt. .... 1 2 3 4 6

Each ..... \$1.30 1.50 1.90 2.20 2.50

**Fruit and Jelly Presses—**

See Presses, Fruit and Jelly.

**Fry Pans—See Pans, Fry.****Fuse—**

Per 1000 Feet.

Hemp ..... \$2.75

Cotton ..... 3.20

Waterproof Spl. Taped ..... 3.65

Waterproof Dbl. Taped ..... 4.40

Waterproof Tpl. Taped ..... 5.15

**Gates, Molasses and Oil—**

Stebbins' Pattern ..... 30¢10¢

**Gauges—**

Marking, Mortise, &c. 50¢50¢10¢

Chapin-Stephens Co.: ..... 50¢50¢10¢

Marking, Mortise, &c. 67%

Stanley R. & L. Co.'s Butt and

Rabbit Gauge ..... 35¢

Marking and Mortise ..... 50¢

Wire, Brown & Sharpe's ..... 33%

Wire, Morse's ..... 25¢

Wire, P. S. & W. Co. .... 30¢

**Gimlets— Single Cut—**

Numbered assort-

ments, per gro.

Nail, Metal, No. 1, \$2.00; 2, \$2.30

Spike, Metal, No. 1, \$4.00; 2, \$4.30

Nail, Wood Handled, No. 1,

\$2.50; 2, \$2.60

Spike, Wood Handled, No. 1,

\$4.30; 2, \$4.60

**Glass, American Window**

See Trade Report.

**Glasses, Level—**

Chapin-Stephens Co. .... 60¢60¢10¢

**Glue, Liquid Fish—**

Bottles or Cans, with Brush.

25¢10¢50¢

International Glue Co. (Martin's) ..... 40¢

**Grease, Axle—**

Common Grade ..... gro. \$4.50\$6.00

Dixon's Everlasting, 10-lb pails, ea.

85¢; in boxes, 1 doz., 1 lb. \$1.20;

2 lb. .... \$2.00

Helmet Hard Oil ..... 25¢

**Griddles, Soapstone—**

Pike Mfg. Co. .... 33%33%10%

**Grindstones—**

Pike Mfg. Co.: ..... 33%

Improved Family Grindstones, 1/2

inch, 1/2 doz., \$2.00 ..... 33%

Royal Mfg. Co.: ..... 30%

Aluminum Grinding Machines, each,

No. 01, \$1.75; 1A, \$2.50; 10,

\$5.00 ..... 30%

Aluminum Sickle Grinders, each,

No. 30A, \$4.00; 30A Combined,

\$6.50 ..... 30%

Aluminum Disc Grinders, each,

\$2.50 ..... 30%

**Grips, Nipple—**

Perfect Nipple Grips ..... 10¢10¢25¢

**Halters and Ties—**

Cow Ties ..... 60¢45¢60¢10¢

Covert Mfg. Co.: ..... 30¢25¢

Web ..... 30¢25¢

Jute Rope ..... 35¢

Sisal Rope ..... 40¢

Cotton Rope ..... 45¢

Hemp Rope ..... 45¢

Oneida Community: ..... 40¢40¢5¢

Am. Coll and Halters ..... 45¢50¢

Niagara Coll and Halters ..... 45¢50¢

Niagara Cow Ties ..... 45¢50¢10¢5¢

**Hammers—****Handled Hammers—**

Heller's Machinists' ..... 55¢10¢55¢10¢5¢

Heller's Farmers' ..... 40¢50¢40¢10¢5¢

Magnetic Tack, Nos. 1, 2, 3, 4, 5,

\$1.50, \$1.75 ..... 50¢

Peck, Stow & Wilcox, Steel ..... 50¢

Fayette R. Plumb: ..... 40¢

Plumb, A. E. Nail ..... 60¢75¢10¢75%

Engineers' and B. S. Hand ..... 50¢12%60%

Machinists' Hammers ..... 50¢15¢60¢5¢

Riveting and Tinner's ..... 40¢25¢40¢12%

**Heavy Hammers and Sledges—**

Under 3 lb., per lb., 50¢30¢5¢

3 to 5 lb., per lb., 40¢60¢5¢

Over 5 lb., per lb., 30¢

Wilkinson's Smith's ..... 10¢10¢5¢

**Handles—****Agricultural Tool Handles**

Arc, Pick, &c. .... 60¢10¢60¢10¢5¢

Hoe, Rake, &c. .... 40¢45¢5¢

Fork, Shovel, Spade, &c.: ..... 40¢45¢5¢

Long Handles ..... 40¢45¢5¢

D Handles ..... 40¢

**Cross-Cut Saw Handles—**

Atkins' ..... 40¢

Champion ..... 50¢

Dixon's ..... 50¢

**Mechanics' Tool Handles—**

Auger, assorted ..... gro. \$2.50\$3.00

Brad Axl. .... gro. \$1.65\$1.75

Chisel Handles, Ass'd, per gro.: ..... 2.65; Hickory ..... 2.15\$2.40

Socket Firming, Apple, \$1.75\$2.40

\$1.95; Hickory ..... \$1.45\$1.60

Socket Framing, Hickory ..... \$1.60\$1.75

File, assorted ..... gro. \$1.30\$1.40

Hammer, Hatchet, &c. .... 60¢10¢60¢10¢5¢

Hand Saw, Varnished, doz. .... 80¢85¢; Not Varnished ..... 63¢75¢

Plane Handles: ..... 75¢

Jack, doz. 30¢; Jack, Bolted, 75¢

Fore, doz. 45¢; Fore, Bolted, 90¢

Chapin-Stephens Co.: ..... 40¢40¢10¢

Chisel ..... 65¢65¢10¢

File and Awl ..... 65¢65¢10¢

Saw and Plane ..... 40¢40¢10¢

Screw Driver ..... 40¢40¢10¢

Millers Falls Adj. and Ratchet Auger

Handles ..... 20¢10¢

Nicholson Simplicity File Handle ..... 30¢

per gro. \$0.50\$1.50

**Hangers—**

NOTE.—Barn Door Hangers are generally quoted per pair, without track, and Parlor Door Hangers per double set with track, &c.

**Allith Mfg. Co.: Reliable, No. 1; Allith, No. 3; Allith Adjustable, No. 6; Reliable Parlor Door ..... 50%**

Chicago Spring Butt Co.: ..... 25%

Covered ..... 25%

Oscillating ..... 25%

Big Twin ..... 25%

Chisholm & Moore Mfg. Co.: ..... 50%

Baggage Car Door ..... 30%

Elevator ..... 50%

Railroad ..... 50%

Cronk & Carrier Mfg. Co.: ..... 60¢10¢

Loose Axle ..... 70%

Roller Bearing, No. 11, \$15.00, 70%

Roller Bearing, Ex. Hy. No. 22, \$18.00 ..... 70%

Hinged Hangers, \$16.00 ..... 60¢10¢

Lane Bros. Co.: ..... 30%

Parlor, Ball Bearing, \$1.00;

Standard, \$3.15; No. 105, \$2.85;

New Model, \$2.80; New Cham-

pion ..... \$2.25

Barn Door, Standard ..... 60¢5¢

Hinged ..... net \$6.08

Special ..... 70¢5¢

Lawrence Bros.: ..... 60¢25¢

Advance and Sterling ..... 70¢75¢

Cleveland and Peerless ..... 70¢75¢

Clippers, No. 73 ..... 60¢25¢

Crown ..... 60¢25¢

Cyclone-Tandem ..... net \$7.50

Easy Parlor Door, Dbl. Sets,

\$2.50; Single Sets, \$1.25 ..... 70¢75¢

Giant ..... 60%

Hummer ..... 60%

N. Y. Nelson Flexible ..... \$16.00\$20

New York ..... 60¢25¢

McKinney Mfg. Co.: ..... 60¢10¢

No. 1, Special, \$15 ..... 60¢10¢

**Screw Hook and Eye:**  
 1/2 to 1 inch.....lb. 6 1/4  
 1 inch.....lb. 7 1/4  
 1 1/2 inch.....lb. 8 1/4

**Hitchers, Stall—**  
 Covert Mfg. Co., Stall Hitchers.....30¢

**Hods—Coal—**  
 Mfg'r's list, price per gross.  
 Inch.....15 16 17 18  
 Galv. Open.....\$35 \$39 \$42 \$46  
 Galv. Open.....36 38 37 35  
 Galv. Funnel.....43 48 52 56  
 Galv. Funnel.....33 36 39 43

**Masons' Etc.—**  
 Cleveland Wire Spring Co.  
 Steel Brick, No. 102.....each \$1.85  
 Steel Mortar, No. 158.....each \$1.35

**Hoes—Eye—**  
 Scovill and Oval Pattern.....  
 60¢ 10¢ 10¢ 10¢ 10¢

Grub, list Feb. 23, 1899.....  
 70¢ 10¢ 75¢ 10¢

D. & H. Scovill.....30¢

**Handled—**  
 NOTE.—Manufacturers are selling  
 from the list of September 1, 1904, but  
 many jobbers are still using list of August  
 1, 1899, or selling at net prices.

Cronk's Weeding, No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

Star Double Bit.....\$2.50  
 Ft. Madison Cotton Hoe.....70¢  
 Ft. Madison Crescent Cultivator Hoe.....70¢  
 Ft. Madison Mattock Hoe.....70¢  
 Regular Weight.....doz. 60¢  
 Junior Size.....doz. 50¢  
 Ft. Madison Sprouting Hoe.....doz. 50¢  
 Ft. Madison Dixie Tobacco Hoe.....75¢

Kretzinger's Cut Easy.....70¢  
 Warren Hoe.....70¢  
 W. & C. Ivanhoe.....70¢  
 B. B. 6 in. Cultivator Hoe.....70¢  
 B. B. 6 in. Cultivator Hoe.....70¢  
 Acme Wedding.....doz. net, \$4.35  
 W. & C. L'ning Shuffie Hoe, doz. \$4.85

**Hoisting Apparatus—**  
 See Machines, Hoisting.

**Holders—Bit—**  
 Angular, 1/2 doz. \$24.00.....45¢ 10¢

**Door—**  
 Barsley's, Iron, 40%; Brass and  
 Bronze.....33 1/2¢  
 Empire.....50¢  
 Pullman.....33 1/2¢  
 Superior.....33 1/2¢

**File and Tool—**  
 Nicholson File Holders and File  
 Handles.....33 1/2¢ 40¢

**Fruit Jar—**  
 Triumph Fruit Jar Holder, 1/2 gross,  
 \$10.00; 1/2 doz. \$1.25

**Trace and Rein—**  
 Fernald Double Trace Holder, 1/2 doz.  
 pairs.....\$1.25  
 Dash Rein Holder, 1/2 doz. pairs.....\$1.25

**Hones—Razor—**  
 Pike Mfg. Co., Belgian, German and  
 Swaty.....50¢

**Hooks—Cast Iron—**  
 Bird Cage, Reading.....40¢  
 Clothes Line, Reading List.....40¢  
 Clothes Line, Stowell.....70¢  
 Coat and Hat, Reading.....45¢ 20¢  
 Coat and Hat, Stowell.....70¢  
 Coat and Hat, Wrightville.....65¢  
 Harness, Reading List.....40¢  
 Harness, Stowell.....40¢  
 School House, Stowell.....70¢

**Wire—**  
 Belt.....80¢  
 Wire C. & H. Hooks.....75¢  
 Columbian Hdw. Co., Gem.....70¢  
 Parker Wire Goods Co., King.....70¢  
 Western W. G. Co., Molding.....75¢  
 Wire Goods Co.,  
 Acme, 60¢ 10¢; Chief, 70¢; Crown,  
 75¢; Czar, 65¢; V. Brace, 75¢;  
 Czar Harness, 50¢ 10¢

**Wrought Iron—**  
 Box, 6 in., per doz., \$1.00; 8 in.,  
 \$1.25; 10 in., \$2.50.  
 Cotton.....doz. \$1.05 @ \$1.25  
 Wrought Staples, Hooks and Nails  
 See Wrought Goods

**Miscellaneous—**  
 Hooks, Bench, see Staps, Bench.  
 Bush, Light, doz. \$1.75; Medium,  
 \$2.35; Heavy, \$2.85  
 Grass, best, all sizes, per doz. \$1.60  
 Grass, common grades, all sizes,  
 per doz.....\$1.30  
 Whitetree.....lb. 5¢ @ 6¢  
 Hooks and Eyes:  
 Brass.....60¢ 45¢ 60¢ 10¢ 45¢  
 Malleable Iron.....70¢ 70¢ 10¢  
 Covert Mfg. Co. Gate and Shuttle  
 Hooks.....40¢  
 Ft. Madison Cut-Easy Corn Hooks,  
 1/2 doz. \$3.25 net

Turner & Stanton Co. Cup and  
 Shoulder.....50¢ 10¢ 10¢  
 Bench Hooks—See Bench Stops.  
 Corn Hooks—See Knives, Corn.

**Horse Nails—**  
 See Nails, Horse.

**Horseshoes—**  
 See Shoes, Horse.

**Hose, Rubber—**  
 Garden Hose, 1/2-inch:  
 Competition.....ft. 5 @ 6¢  
 3-ply Guaranteed, ft. 8 @ 9¢  
 4-ply Guaranteed, ft. 10 @ 11¢  
 Cotton Garden, 1/2-in., coupled:  
 Low Grade.....ft. 9 @ 9¢  
 Fair Quality.....ft. 10 @ 11¢

**Irons—Sad—**  
 From 1 to 10.....lb. 3 @ 5¢  
 B. B. Sad Irons.....lb. 3 @ 5¢  
 Mrs. Potts', cents per set:  
 Nos. 50 55 60 65  
 Joy'd Tops.....80 77 90 88

**Tin'd Tops.....85 82 95 92**  
**New England Pressing, lb. 3¢ @ 4¢**  
**Pinking—**  
**Pinking Irons.....doz. 60¢**

**Irons, Soldering**  
 See Copiers.

**Jacks, Wagon—**  
 Covert Mfg. Co.:  
 Auto Screw.....30¢ 2¢; Steel, 45¢  
 Lockport.....50¢  
 Lane's Steel.....30¢ 10¢ 2¢  
 Richards' Tiger Steel, No. 130.....50¢ 10¢  
 Smith & Hemenway Co.'s.....25¢

**Kettles—**  
 Brass, Spun, Plain.....20¢ 25¢  
 Enameled and Cast Iron—See Ware,  
 Hollow.

**Knives—**  
**Butcher, Kitchen, &c.—**  
 Foster Bros. Butcher, &c.....30¢  
 Wilkinson Shear & Cutlery Co.....60¢

**Corn—**  
 Wilkinson Shear & Cutlery Co.,  
 Wilcox Brand Knives and Hooks.....60¢  
 Withington Acme, 1/2 doz. \$2.50;  
 Dent, \$2.75; Adj. Serrated, \$2.20;  
 Serrated, \$2.10; Yankee No. 1, \$1.50;  
 Yankee No. 2, \$1.15.

**Drawing—**  
 Standard List.....75¢ 5¢ 75¢ 10¢  
 C. E. Jennings & Co., Nos. 45, 46, 60;  
 Jennings & Griffin, Nos. 41, 42.....75¢  
 Swan's.....70¢  
 Watrous.....15¢  
 L. & I. J. White.....20¢ 5¢ 25¢

**Hay and Straw—**  
 Serrated Edge, per doz. \$5.75 @ \$6.50  
 Iwan's Sickle Edge.....doz. \$9.50  
 Iwan's Serrated.....doz. \$10.00

**Mincing—**  
 Buffalo.....1/2 gro. \$13.00

**Miscellaneous—**  
 Farriers'.....doz. \$3.00 @ \$3.25  
 Wostenholm's.....1/2 doz. \$3.00 @ \$3.25

**Knobs—**  
 Base, 2 1/2-inch, Birch, or Maple,  
 Rubber Tip.....gro. \$1.25 @ \$1.40  
 Carriage, Jap., all sizes.....  
 gro. 40¢ @ 45¢

**Door, Mineral.....doz. 65¢ 70¢**  
**Door, Por. Jap'd.....doz. 70¢ 75¢**  
**Door, Por. Nickel.....doz. \$2.05 @ \$2.15**  
 Barsley's Wood Door, Shutters, &c. 15%

**Lacing, Leather—**  
 See Belting, Leather—

**Ladders, Store, &c.—**  
 Allith Mfg. Co., Reliable.....50¢  
 Lane's Store.....25¢  
 Myers' Noiseless Store Ladders.....50¢  
 Richards Mfg. Co.:  
 Improved Noiseless, No. 112.....50¢  
 Climax Shelf, No. 113.....50¢  
 Trolley, No. 109.....50¢

**Ladies, Melting—**  
 L. & G. Mfg. Co. (low list).....25¢  
 P. S. & W.....40¢ 10¢  
 Reading.....60¢

**Lanterns—Tubular—**  
 Regular Tubular, No. 0.....  
 doz. \$4.25 @ \$4.50  
 Lift Tubular, No. 0.....  
 doz. \$4.75 @ \$5.00  
 Hinge Tubular, No. 0.....  
 doz. \$4.75 @ \$5.00  
 Other Styles.....1/4 @ 10¢ 45¢

**Bull's Eye Police—**  
 No. 1, 2 1/2-inch.....\$2.75 @ \$3.00  
 No. 2, 3-inch.....\$3.00 @ \$3.25

**Lasts and Stands, Shoe—**  
 Stowell's Atlas, Malleable Iron.....50¢  
 Stowell's Badger, Cast Iron.....50¢

**Latches—Thumb—**  
 Roggin's Latches, with screw.....  
 doz. 35¢ @ 40¢

**Door—**  
 Allith Mfg. Co., Automatic, No.  
 400, 1/2 doz. \$4.00  
 Cronk & Carrier Mfg. Co., No. 101,  
 1/2 doz. \$2.30  
 Cronk & Carrier Mfg. Co., Latch,  
 Hasp and Staple.....50¢  
 Richards' Bull Dog, Heavy, No.  
 125.....50¢ 55¢  
 Richards' Trump, No. 127.....\$1.50  
 Stowell's Steel.....60¢

**Leaders, Cattle—**  
 Small.....doz. 50¢; large, 60¢  
 Covert Mfg. Co.:  
 Cotton, 45%; Hemp, 45%; Jute, 35%;  
 Sisal, 20%

**Lifters, Transom—**  
 R. & E.....10%

**Lines—**  
 Wire Clothes, Nos. 18 19 20  
 100 feet.....\$2.25 2.00 1.75  
 75 feet.....\$1.75 1.55 1.10  
 Anniston Waterproof Clothes, 50 ft.,  
 1/2 gro. \$25.00; Gilt Edge, \$23.00; Air  
 Line, \$22.00; Acme, \$18.00; Alabama,  
 \$17.00; Empire, \$16.00; Advance,  
 \$14.00; Eclipse, \$13.50; Chicago,  
 \$11.50; Standard, \$10.50; Columbia,  
 \$9.50; Allston, \$13.50; Calhoun, \$12.00.  
 Samsom Cordage Works:  
 Solid Braided Chalk, Nos. 0 to 3, 40¢  
 Solid Braided, Mason's, No. 0,  
 Silver Lake Braided Chalk, No. 0,  
 \$5.00; No. 1, \$8.50; No. 2, \$7.00; No.  
 3, \$7.50.  
 Mason's Lines, Shade Cord, &c.:  
 White Cotton, No. 3 1/2, \$1.50; No. 4,  
 \$2.00; No. 4 1/2, \$2.50; Colors, No. 3 1/2,  
 \$1.75; No. 4, \$2.25; No. 4 1/2, \$2.75;  
 Linen, No. 3 1/2, \$2.50; No. 4, \$3.50;  
 No. 4 1/2, \$4.50.  
 Tent and Awning Lines: No. 5,  
 White Cotton, \$7.50; Drab Cotton,  
 \$8.50  
 Clothes Lines, White Cotton: 50 ft.,  
 \$2.75; 60 ft., \$3.25; 70 ft., \$3.75;  
 80 ft., \$4.00; 90 ft., \$4.25; 100 ft.,  
 100 ft., \$5.25

**Locks—Cabinet—**  
 Cabinet Locks.....33 1/2 %  
**Door Locks, Latches, &c.—**  
 NOTE.—Net Prices are very often made  
 on these goods.  
 Reading Hardware Co.....40%  
 R. & E. Mfg. Co.....10%

**Elevator—**  
 Stowell's.....50%

**Padlocks—**  
 R. & E. Mfg. Co. Wrought Steel and  
 Brass.....75¢ 10¢

**Sash, &c.—**  
 Ives' Patent:  
 Bronze and Brass, 60%; Crescent,  
 40¢ 20¢; Iron, 60%; Window Ventil-  
 ating, 55%; Robinson Pat. Ventil-  
 ating Sash Lock, 33 1/2 %; Wrought  
 Bronze and Brass, 55%; Wrought  
 Steel, 55%  
 Pullman Patent Ventilating Lock, 35%  
 Reading.....40%

**Machines—Boring—**  
 Com. Up't, without Augers,  
 \$2.00 @ \$2.25  
 Com. Ang'l'r, without Augers,  
 \$2.25 @ \$2.50  
 Swan's Improved.....40¢ 10¢  
 Jennings', Nos. 1 and 4.....55¢ 5¢  
 Millers' Palls.....75¢  
 Snell's, Upright, \$2.65; Angular, \$2.90

**Corking—**  
 Reisinger Invinible Hand Power.....  
 1/2 doz. \$18.00

**Fence—**  
 Williams' Fence Machines.....each \$5.50

**Hoisting—**  
 Moore's Anti-Friction Chain Hoist, 30%  
 Moore's Hand Hoist, with Lock.....30%  
 Moore's Cyclone High Speed Chain  
 Hoist.....25%

**Ice Cutting—**  
 Chandler's.....12 1/2 %

**Washing**  
 Boss Washing Machine Co.: Per doz.  
 Boss No. 1.....\$57.00  
 Boss Rotary.....\$57.00  
 Champion Rotary Banner No. 1, \$57.00  
 Standard Champion No. 1.....\$59.00  
 Standard Perfection.....\$27.00  
 Cincinnati Square Western.....\$33.00  
 Uneda American, Round.....\$33.60

**Mallets—**  
 Hickory.....45¢ 5¢ @ 50¢  
 Lignumvita.....45¢ 5¢ @ 50¢  
 Tinners' Hickory and Apple-  
 wood.....doz. 45¢ @ 50¢

**Mangers, Stable—**  
 Sweet Iron Works.....50%

**Mashers, Vegetable—**  
 Western, W. G. Co., Potato.....60¢ 10¢

**Mats,**





<b>Keuffel &amp; Esser Co.:</b>	
Folding, Wood.....	35¢@10%
Folding, Steel.....	35¢@10%
Lufkin's Steel.....	50¢@10%
Lufkin's Steel.....	50¢@10%
Stanley R. & L. Co.:	
Boxwood.....	60%
Ivory.....	45%
Miscellaneous.....	60%
Zig Zag.....	40%
Zig Zag, Pin Joint.....	45%
Upper Nut Co.:	
Boxwood.....	60¢@10%
Ivory.....	35¢@10%

**Sash Balances—**

See Balance, Sash.

**Sash Locks—**

See Locks, Sash.

**Sash Weights—**

See Weights, Sash.

**Sausage Stuffers or Fillers**

See Stuffers or Fillers, Sausage.

**Saw Frames—**

See Frames, Saw.

**Saw Sets—See Sets, Saw.****Saw Tools—See Tools, Saw.****Saws—**

<b>Atkins:</b>	
Circular.....	50%
Band, 2 to 18 in. wide.....	50¢@10%
Butcher Saws.....	50%
Cross Cuts.....	35%
One-Man Cross Cut.....	40%
Narrow Cross Cut.....	50%
Hand, Rip and Panel.....	35%
Miter Box and Compass.....	40%
Mulay, Mill and Drag.....	50%
<b>Chapin-Stephens Co.:</b>	
Turning Saws and Frames.....	30¢@10%
Diamond Saw & Stamping Works:	
Sterling Kitchen Saws.....	30¢@10%

**Disston's:**

Circular, Solid and Ins'ted Tooth.....	50%
Band, 2 to 18 in. wide.....	50%
Hand, 1/4 to 1 1/2.....	50%
Crosscuts.....	45%
Narrow Crosscuts.....	50%
Mulay, Mill and Drag.....	50%
Framed Woodsaws.....	25%
Woodsaw Blades.....	25%
Woodsaw Rods, Tinned.....	25%
Hand Saws, Nos. 12, 9, 9, 16, 100.....	25%
12, 10, 7, 7, 8.....	25%
Hand Saws, Nos. 7, 107, 107 1/2, 3, 1.....	25%
0, 00, Combination.....	30%
Compass, Key Hole, &c.....	25%
<b>Butcher Saws and Blades.....</b>	

**C. E. Jennings & Co.:**

Back Saws.....	25%
Butcher Saws.....	30%
Compass and Key Hole Saws.....	35%
Framed Wood Saws.....	30%
Hand Saws.....	25%
Wood Saw Blades.....	25%

**Millers Falls:**

Butcher Saws.....	15¢@10%
Star Saw Blades.....	15¢@10%
<b>Massachusetts Saw Works:</b>	
Victor Kitchen Saws.....	40¢@10%
Butcher Saws.....	35%
Peace & Richardson's Hand Saws.....	30%

**Simonds:**

Circular Saws.....	45%
Crescent Ground Cross Cut Saws.....	30%
One-Man Cross Cuts.....	40%
Gang Mill, Mulay and Drag Saws.....	45%
Band Saws.....	25%
Back Saws.....	25%
Butcher Saws.....	35¢@10%
Hand Saws.....	25¢@10%
Hand Saws, Bay State Brand.....	45%
Compass, Key Hole, &c.....	25¢@10%
Wood Saws.....	40¢@10%
Wheeler, Madden & Clemens Mfg. Co.'s Cross Cut Saws.....	50%

**Hack Saw Blades and Frames—**

<b>Atkins' Hack Saw Blades A A A.....</b>	
Disston's:	
Concave Blades.....	25%
Keystone Blades.....	25%
Hack Saw Frames.....	30%
Simonds File Co.....	35%
<b>C. E. Jennings &amp; Co.'s:</b>	
Hack Saw Frames, Nos. 175, 180.....	40¢@10%

**Hack Saws, Nos. 175, 180, complete.....**

Goodell's Hack Saw Blades.....	40¢@10%
Griffin's Hack Saw Frames.....	35¢@10%
Griffin's Hack Saw Blades.....	35¢@10%
Star Hack Saws.....	15¢@10%
Sterling Hack Saw Blades.....	30¢@10%
Sterling Hack Saw Frames.....	30¢@10%
Sterling Power Hack Saw Machines.....	each, No. 1, \$25.00; No. 2, \$30.00; 10%
Victor Hack Saw Blades.....	25%
Victor Hack Saw Frames.....	40%

**Scroll—**

Barnes, No. 7, 15.....	25%
Barnes Scroll Saw Blades.....	40%
Barnes Velociped Power Scroll Saw.....	without boring attachment, \$18; with boring attachment, \$20; 10%
Lester, complete, \$10.00 and \$4.00.....	15¢@10%
Rogers, complete, \$3.50 and \$4.00.....	15¢@10%

**Seales—**

<b>Family, Turnbull's.....</b>	
Counter:	
Hatch, Platform, 1/4 os. to 4 lbs.....	50¢@10%
Two Platforms, 1/4 os. to 8 lbs.....	50¢@10%
Union Platform, Plain.....	\$1.70@10%
Union Platform, Stpd.....	\$1.85@10%

**Chattillon's:**

Eureka.....	50%
Favorite.....	50%
Crocker's Trip Scales.....	50%
Chicago Scale Co.:	
The Little Detective.....	25 lbs 50%
Union or Family No. 2.....	50%
Portable Platform (reduced list).....	50%
Wagon or Stock (reduced list).....	25%
The Standard Portables.....	45%
The Standard R. R. and Wagon.....	50¢@10%

**Scrapers—**

Box, 1 Handle.....	dos. \$2.00@25%
Box, 2 Handle.....	dos. \$2.50@25%
Ship.....	Light, \$2.00; Heavy, \$4.00

Adjustable Box Scraper (S. R. & L. Co.).....	\$5.00.....15%
Chapin-Stephens Co., Box.....	30¢@10%

**Screws—Bench and Hand**

Bench, Iron, doz., 1 in.....	\$2.50@10%
2 1/2; 1 1/4, \$3.00@3.25; 1 1/4, \$3.50@3.75	
Bench, Wood.....	20¢@10%
Hand, Wood.....	20¢@10%
R. Bliss Mfg. Co., Hand.....	20¢@10%
Chapin-Stephens Co., Hand.....	20%

**Coach, Lag and Hand Rail—**

Lag, Cone Point, list Oct. 1.....	75¢@15%
Coach, Gimlet Point, list Oct. 1, '99.....	75¢@10%
Hand Rail, list Jan. 1, '01.....	70¢@10%

**Jack Screws—**

Standard List.....	75%
Millers Falls.....	50¢@10%
P. S. & W.....	50%
Swett Iron Works.....	75¢@10%

**Machine—**

<b>List Jan. 1, '98:</b>	
Flat or Round Head, Iron.....	50¢@10%
Flat or Round Head, Brass.....	50¢@10%

**Set and Cap—**

Set (Iron).....	75¢@10%
Set (Steel), net advance over Iron.....	25%
Sq. Hd. Cap.....	70¢@10%
Hex. Hd. Cap.....	70¢@10%
Rd. Hd. Cap.....	50¢@10%
Fillister Hd. Cap.....	60¢@10%

**Wood—**

<b>List July 23, 1903:</b>	
Flat Head, Iron.....	87 1/2¢@10%
Round Head, Iron.....	85¢@10%
Flat Head, Brass.....	82 1/2¢@10%
Round Head, Brass.....	80¢@10%
Flat Head, Bronze.....	77 1/2¢@10%
Round Head, Bronze.....	75¢@10%
Drive Screws.....	87 1/2¢@10%

**Scroll Saws—**

<b>See Saws, Scroll.</b>	
<b>Scythes—</b>	
Grass, No. 1, Plain.....	\$6.25@6.75
Clipper, Bronzed Webb.....	\$6.50@7.00
No. 3 Clipper, Pol'd Webb.....	\$6.75@7.25

**No. 6 Clipper and Solid Steel.....**

Bush, Weed and Bramble, No. 2.....	\$6.50@7.00
Grain, No. 1.....	\$8.25@8.75
Bronzed Webb, No. 1.....	\$8.50@9.00
No. 3 and 4 Clipper, Grain.....	\$8.75@9.25
Solid Steel, No. 6.....	\$9.25@9.75

**Seeders, Raisin—**

<b>Enterprise.....</b>	
<b>Sets—Awl and Tool—</b>	
Fray's Adj. Tool Handles, Nos. 1, 112; 2, 113; 3, 112; 4, 99; 5, 97.....	50%
C. E. Jennings & Co.'s Model Tool Holders.....	30%
Millers Falls Adj. Tool Handles, No. 1, 112; No. 4, 112; No. 5, 113.....	15¢@10%

**Garden Tool Sets—**

Ft. Madison Three Plows, Hoe, Rake and Shovel.....	doz sets \$9.00
<b>Sets, Nail—</b>	
Octagon.....	gro. \$3.50@3.75
Buck Bros.....	27 1/2%
Canon's Diamond Point.....	gro. \$12.40
Mayhew's.....	gro. \$9.00
Snell's Cor'gated, Cup Pt.....	gro. \$7.20
Snell's Knurled, Cup Pt.....	gro. \$7.20
Victor Knurled Cup Pt.....	gro. \$7.50

**Rivet—**

Regular list.....	75¢@10%
<b>Saw—</b>	
Atkins:	
Criterion.....	40%
Adjustable.....	40%
Disston's Star, Monarch and Tri.....	30%
Morrill's No. 1.....	\$15.00
Nos. 3 and 4, Cross Cut.....	\$20.00
No. 5, Mill.....	\$30.00
Nos. 10, 11, 95.....	\$15.00
No. 1 Old Style.....	\$10.00
Special.....	\$16.25
Giant Royal Cross Cut.....	doz. \$8.00
Chapin-Stephens Co.....	doz. \$4.50
Taintor Positive.....	doz. \$6.75

**Shaving—**

Fox Shaving Sets, No. 30.....	doz. net, \$24.00
<b>Smith &amp; Hemenway Co.'s.....</b>	
<b>Sharpeners, Knife—</b>	
Chicago Wheel & Mfg. Co.....	70%
Pike Mfg. Co.:	
Fast Cut Pocket Knife Honers.....	\$1.50
Mounted Kitchen Sand Stone.....	\$1.50
Natural Grit Carving Knife Honers.....	\$3.00
Quick Cut Emery Carving Knife Honers.....	\$1.50
Quick Edge Pocket Knife Honers.....	\$2.00

**Skate—**

Smith & Hemenway Co., Eureka.....	20%
<b>Shaves, Spoke—</b>	
Iron.....	dos. \$1.10@1.25
Wood.....	dos. \$1.75@2.25
Bailey's (Stanley R. & L. Co.).....	45%
Razor Edge (Stanley R. & L. Co.).....	50%
Iron.....	50%
Wood.....	50%
Goodell's.....	doz. \$9.00
Wood's Ft and F2.....	50%

**Shears—**

Best.....	\$16.00 25.00 30.00 gro.
Good.....	\$13.00 15.00 17.00 gro.
Cheap.....	\$5.00 6.00 7.00 gro.

**Straight Trimmers, &c.—**

Best quality Jap.....	70¢@10%
Best quality, Nickel.....	60¢@10%
Fair quality, Jap.....	50¢@10%
Fair quality, Nickel.....	75¢@10%

Tailors' Shears.....	40¢@10%
Acme Cast Shears.....	40¢@10%
Heinisch's Tailor's Shears.....	10%
Wilkinson Shear & Cutlery Co.:	
Sheep, 1900 list.....	30¢@10%
Grass.....	50¢@10%
Horse or Mule.....	50¢@10%

**Tinners' Snips—**

Steel Blades.....	20¢@10%
Steel Laid Blades.....	40¢@10%
Forged Handles, Steel Blades, Berlin.....	50%

**Heinisch's Snips.....**

Jennings & Griffin Mfg. Co.'s, 6 1/4 to 10 in.....	50%
Niagara Snips.....	40%
P. S. & W. Forged Handles.....	20%

**Pruning Shears—**

Cronk's Hand Shears.....	33 1/2%
Cronk's Wood Handle Shears.....	33 1/2%
Diaston's Combined Pruning Hook and Saw.....	doz. \$18.00.....25%
Diaston's Pruning Hook only.....	doz. \$12.00.....25%
<b>John T. Henry Mfg. Co.:</b>	
Pruning Shears, all grades.....	50%
Wilkinson Shear & Cutlery Co.:	
Hedge, Wilcut Brand.....	60¢@10%
Lawn and Border, Wilcut Brand.....	60¢@10%

**Sheaves—Sliding Door—**

Stowell's Anti-Friction.....	50%
Reading.....	40%
R. & E. list.....	15%
Wrightsville Hatfield Pattern.....	80%

**Sliding Shutter—**

Reading list.....	40%
R. & E. list.....	10%

**Shells—Shells, Empty—**

Brass Shells, Empty:	
Climax, 10 and 12 gauge.....	65¢@10%
Club, Rival, 65¢@10%; First Quality.....	60¢@10%

**Paper Shells, Empty:**

New Rapid, 10, 12, 16 and 20 gauge.....	25¢@10%
Climax, 10 and 12 gauge; Acme, 10, 12, 16 and 20 gauge; Ideal, 10, 12, 16 and 20 gauge; Leader grade.....	25¢@10%

**Union, League, 12 and 12 gauge.....**

Rival Grade.....	25%
New Climax, Deffance, 10, 12, 14, 16 and 20 gauge; Climax, 14, 16 and 20 gauge.....	20¢@10%
Challenge, Monarch, 10, 12, 16 and 20 gauge; League, Union, 14, 16 and 20 gauge; Repeater Grade.....	20%
Expert, 10, 12, 16 and 20 gauge.....	33 1/2¢@10%

**Robin Hood, Low Brass.....**

Robin Hood, High Brass.....	30¢@10%
Indian, Black Powder.....	25¢@10%

**Shells, Loaded.....**

Loaded with Black Powder.....	40%
Loaded with Smokeless Powder, medium grade.....	40¢@10%
Loaded with Smokeless Powder, high grade.....	40¢@10%
Robin Hood:	
Smokeless Robin Hood, Low Brass.....	50%
Smokeless Comets, High Brass.....	50¢@10%
Indian, Black Powder.....	40¢@10%
Winchester:	
Smokeless Repeater Grade.....	40¢@10%
Smokeless Leader Grade.....	40¢@10%
Black Powder.....	40%

**Shingles, Metal—Per Sq.**

Edwards Mfg. Co.:	
Painted.....	Galv.
14 x 20.....	\$4.25 \$6.00
10 x 14.....	4.50 6.25
7 x 10.....	4.75 6.50
Wheeling Corrugating Co.:	
Tin Painted, Galv.....	
Dixie, 14 x 20 in.....	4.25 \$5.50
Dixie, 10 x 14 in.....	4.50 6.00
Dixie, 7 x 10 in.....	5.00 6.75

**Shoes, Horse, Mule, &c.—**

<b>F.o.b. Pittsburgh:</b>	
Iron.....	per keg \$4.10
Steel.....	per keg \$3.85
Burden's, all sizes.....	per keg \$3.90

**Shot—**

<b>Drop, up to B.....</b>	
Drop, B and larger.....	2.15
Buc.....	2.15
Chilled.....	2.15
Dust.....	2.35

**Shovels and Spades—**

<b>Association List, Nov. 15, 1902, 40%</b>	
<b>Snow Shovels—</b>	
Long Handle.....	\$2.75@3.00
Wood and Mail, D. Handle.....	\$3.25@3.50

**Sieves and Sifters—**

<b>Hunter's Imitation.....</b>	
<b>Hunter's Genuine.....</b>	
per gro. \$12.00@12.50	
Buffalo Metallic Blue, R. M. Co., gr.....	
14/16.....	16/18 18/20
21/20.....	21/20 21/20

**Sieves, Seamless Metallic.....**

<b>Per dozen.....</b>	
Mesh.....	14 16 18 20
Iron Wire.....	\$1.05 1.05 1.10 1.20
Tinned Wire.....	\$1.15 1.15 1.20 1.30

**Sieves, Wooden Rim—**

Nested, 10, 11 and 12 inch.....	doz. \$0.90@0.95
Mesh 18, Nested.....	doz. \$1.00@1.05
Mesh 20, Nested.....	doz. \$1.00@1.10
Mesh 21, Nested.....	doz. \$1.30@1.40

**Sinks, Cast Iron—**

<b>Painted, Standard list:</b>	
12 x 12 to 22 x 36 in.....	60%
20 x 10 to 24 x 50 in.....	50%
24 x 60 to 24 x 120 in.....	30%

**Barnes' low list:**

Up to and including 20 x 36 in.....	50%
20 x 10 to 24 x 50 in.....	45%
<b>NOTE—There is not entire uniformity in lists used by jobbers.</b>	

**Skels, Wagon—**



Scythe Stones—	
Chicago Wheel & Mfg. Co.: Gem, 10 in., \$8.00; 12 in., \$10.50.	
Norton Alundum Scythe Stones: Less than 10 gross lots, \$4.00; 10 gross lots or more, \$3.50.	
Pike Aig. Co., 1901 list:	
Black Diamond S. S., 8 in., \$12.00	
Lamouille S. S., 8 in., \$11.50	
White Mountain S. S., 8 in., \$9.50	
Green Mountain S. S., 8 in., \$8.00	
Extra Indian Pond S. S., 8 in., \$7.00	
No. 1 Indian Pond S. S., 8 in., \$7.00	
No. 2 Indian Pond S. S., 8 in., \$4.50	
Leader Red End S. S., 8 in., \$4.50	
Quick Cut Emery, 8 in., \$10.00	
Pure Corundum, 8 in., \$18.00	
Crescent, 8 in., \$7.00	
Emery Scythe Rifles, 2 Coat, \$8	
Emery Scythe Rifles, 3 Coat, \$10	
Emery Scythe Rifles, 4 Coat, \$12	
Balance of 1904 list 33 1/2%	
Stoppers, Bottle—	
Victor Bottle Stoppers, 10 doz., \$3.00	
Stops—Bench—	
Millers Falls, 10 doz., No. 1, \$10.00	
Morrill's, No. 2, \$12.50	
Door—	
Chapin-Stephens Co., 10 doz., \$10.00	
Plane—	
Chapin-Stephens Co., 10 doz., \$20.00	
Straps—Box—	
Cary's Universal, case lots, 20 doz., \$10.00	
Stretchers, Carpet—	
Cast Iron, Steel Points, doz., \$10.00	
Strops, Razor—	
Star Diagonal Strop, 10 doz., \$25.00	
Stuffers, Sausage—	
Enterprise Mfg. Co., 10 doz., \$25.00	
National Specialty Co., list Jan. 1, 1902	
Sweepers, Carpet—	
National Sweeper Co.: Louis XV, Roller Bearing, Gold Plated, \$120.00	
Hepplewhite, Roller Bearing, Silver Plated, \$120.00	
Sheraton, Roller Bearing, N'kel, \$100.00	
Ye Mission, Roller Bearing, Oxidized Coppered, \$100.00	
Transparent, Roller Bearing, Plate Glass top, N'kel, \$100.00	
National Queen, Roller Bearing, Fancy Veneers, \$100.00	
Loyal, Roller Bearing, Veneers, N'kel, \$100.00	
Triple Medal, Roller Bearing, N'kel, \$100.00	
Marion, Roller Bearing, N'kel, \$100.00	
Marion Queen, Roller Bearing, N'kel, \$100.00	
Monarch, Roller Bearing, N'kel, \$100.00	
Perpetual, Regular B'rs, N'kel, \$100.00	
Perpetual, Regular B'rs, Jap., \$100.00	
Monarch Extra (17 in. case), Roller Bearing, N'kel, \$100.00	
Monarch Extra (17 in. case), Roller Bearing, Japanned, \$100.00	
Auditorium (25 in. case), Roller Bearing, N'kel, \$100.00	
Mammoth (30 in. case), Roller Bearing, N'kel, \$100.00	
NOTE—Rebates: 50¢ per dozen on three-dozen lots; \$1 per dozen on five-dozen lots; \$2 per dozen on ten-dozen lots; \$3 per dozen on twenty-five dozen lots.	
Sturtevant Metal Stamping Co.: Eureka Japanned, 10 doz., \$15.00	
Model E, Sanitary, 10 doz., \$25.00	
Model A, Sterling, 10 doz., \$25.00	
Model B, Sterling, N'kel, 10 doz., \$25.00	
Model B, Sterling, Japanned, 10 doz., \$25.00	
Model C, Sterling, 10 doz., \$25.00	
Model D, Sterling, 10 doz., \$25.00	
Tacks, Finishing Nails, &c.	
New List, May 1, 1905.	
American Carpet Tacks, 100 doz., \$5.00	
American Cut Tacks, 100 doz., \$5.00	
Suedes Cut Tacks, 100 doz., \$5.00	
Suedes Upholsterers', 100 doz., \$5.00	
Gimp Tacks, 100 doz., \$5.00	
Lace Tacks, 100 doz., \$5.00	
Trimmers' Tacks, 100 doz., \$5.00	
Looking Glass Tacks, 100 doz., \$5.00	
Bill Posters' and Railroad Tacks, 100 doz., \$5.00	
Hungarian Nails, 80 doz., \$10.00	
Finishing Nails, 70 doz., \$10.00	
Trunk and Clout Nails, 80 doz., \$10.00	
NOTE—The above prices are for Standard Weights. An extra 5¢ is given on Medium Weights, and an extra 10¢ is given on light weights.	
Miscellaneous—	
Double Pointed Tacks, 100 doz., \$5.00	
See also Nails, Wire.	
Tanks, Oil—	
Emerald, R. M. Co., 30-gal., \$3.40	
Emerald, R. M. Co., 20-gal., \$3.25	
Queen City, R. M. Co., 30-gal., \$3.50	
Queen City, R. M. Co., 20-gal., \$3.50	
Tapes, Measuring—	
American Asses' Skin, 50 yds., \$5.00	
Patent Leather, 50 yds., \$5.00	
Steel, 50 yds., \$5.00	
Chesterman's, 50 yds., \$5.00	
Keuffel & Esser Co.: Favorite, Ass Skin, 50 yds., \$5.00	
Favorite, Duck and Leather, 50 yds., \$5.00	
Metallic and Steel, lower list, 50 yds., \$5.00	
Lufkin's: Asses' Skin, 50 yds., \$5.00	

Metallic, 50 doz., \$5.00	
Patent Bend, Leather, 50 doz., \$5.00	
Pocket, 50 doz., \$5.00	
Wienbusch & Hilger: Chesterman's Metallic, No. 34L, etc., 50 doz., \$5.00	
Chesterman's Steel, No. 103L, etc., 50 doz., \$5.00	
Teeth, Harrow—	
Steel Harrow Teeth, plain or headed, 1/4-inch and larger, per 100 lbs., \$2.75 to \$3.00	
Thermometers—	
Tin Case, 80 doz., \$10.00 to \$10.50	
Ties, Bale—Steel Wire	
Single Loop, 80 doz., \$10.00 to \$10.50	
Monitor, Cross Head, 80 doz., \$10.00 to \$10.50	
Brick Ties—	
Niagara Brick Ties, 50 doz., \$10.00	
Tinners' Shears, &c.—	
See Shears, Tinners', &c.	
Tinware—	
Stamped, Japanned and Piced, sold very generally at net prices.	
Tire Benders, Upsetters, &c.	
See Benders and Upsetters, Tire.	
Tools—Coopers'—	
L. & I. J. White, 20 doz., \$20.00 to \$25.00	
Hay—	
Myers' Hay Tools, 50 doz., \$5.00	
Stowell's Hay Carriers, 50 doz., \$5.00	
Forks, 50 doz., \$5.00	
Miniature—	
Smith & Hemenway Co.'s, Davidson, 50 doz., \$5.00	
Saw—	
Atkins' Cross Cut Saw Tools, 35 doz., \$35.00	
Simonds' Improved, 35 doz., \$35.00	
Simonds' Crescent, 35 doz., \$35.00	
Ship—	
L. & I. J. White, 20 doz., \$20.00 to \$25.00	
Transom Lifters—	
See Lifters, Transom.	
Traps—Fly—	
Balloon, Globe or Acme, doz., \$1.50 to \$1.75; gro., \$11.50 to \$12.00	
Harper, Champion or Paragon, doz., \$1.25 to \$1.40; gro., \$13.00 to \$13.50	
Game—	
Imitation Oneida, 75 doz., \$75.00	
Newhouse, 75 doz., \$75.00	
Hawley & Norton, 75 doz., \$75.00	
Victor, 75 doz., \$75.00	
Oneida, 75 doz., \$75.00	
Mouse and Rat—	
Mouse, Wood, Choker, doz. holes, 8 doz., \$8.00	
Mouse, Round or Square Wire, doz., \$8.00 to \$9.00	
Marty French Rat and Mouse Traps (Genuine): No. 1, Rat, 10 doz., \$13.25; case of 24, \$11.50	
No. 3, Rat, 10 doz., \$6.50; case of 24, \$5.75	
No. 3 1/2, Rat, 10 doz., \$5.25; case of 24, \$4.70	
No. 4, Mouse, 10 doz., \$3.85; case of 150, \$3.00	
No. 5, Mouse, 10 doz., \$3.00; case of 150, \$2.25	
Trimmers, Spoke—	
Wood's E. I., 50 doz., \$50.00	
Trowels—	
Dixton Brick and Pointing, 25 doz., \$25.00	
Dixton Plastering, 20 doz., \$20.00	
Dixton "Standard Brand" and Garden Trowels, 30 doz., \$30.00	
Kohler's Steel Garden Trowels, 30 doz., \$30.00	
Never-Break Steel Garden Trowels, 30 doz., \$30.00	
Rose Brick and Plastering, 25 doz., \$25.00	
Woodrough & McParlin, Plastering, 25 doz., \$25.00	
Trucks, Warehouse, &c.—	
B. & L. Block Co.: New York Pattern, 50 doz., \$50.00	
Western Pattern, 50 doz., \$50.00	
Handy Trucks, 50 doz., \$15.00	
Grocery, 50 doz., \$15.00	
Daisy Stove Trucks, Improved Pattern, 50 doz., \$15.00	
McKinney Trucks, 50 doz., \$15.00	
Model Store Trucks, 50 doz., \$15.00	
Tubs, Wash—	
M'f'r's list, price per gross.	
No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000	

Parallel—	
Athol Machine Co.: Simpson's Adjustable, 40 doz., \$40.00	
Standard, 40 doz., \$40.00	
Amateur, 40 doz., \$40.00	
Combination, 40 doz., \$40.00	
Emmert Universal, 40 doz., \$40.00	
Pattern Makers' No. 1, \$15.00; No. 2, \$12.50	
Machinist and Tool Makers' No. 4A, \$12.50; No. 6A, \$10.00; No. 10A, \$22.50	
Presto Quick Acting, Adjustable Jaw, 25 doz., \$25.00; Solid Jaw, 25 doz., \$25.00	
Tiger Machinists', 40 doz., \$40.00	
Fisher & Norris Double Screw, net, each, Nos. 2, \$10.50; 3, \$16.00; 4, \$20.50; 5, \$27.00	
Hollands: Machinists', 40 doz., \$40.00	
Keystone, 40 doz., \$40.00	
Lewis Tool Co.: Adjustable Jaw, 40 doz., \$40.00	
Monarch, 50 doz., Solid Jaw, 50 doz., \$50.00	
Massey Vice Co.: Cincher, 40 doz., \$40.00	
Perfect, 15 doz., Lightning Grip, 15 doz., \$15.00	
Merrill's: Millers Falls Oval Slide Pattern, 60 doz., \$60.00	
Parker's: Victor, 20 doz., Regular, 20 doz., \$20.00	
Vulcan's: Combination Pipe, 50 doz., \$50.00	
Prentiss: Sneiders' X. I., 20 doz., \$20.00	
Stephens', 35 doz., \$35.00	
Saw Filers—	
Dixton's D 3 Clamp and Guide, 30 doz., \$24.00; 30 doz., Clamps, 30 doz., \$24.00	
Perfecting Saw Clamps, 30 doz., \$24.00	
Reading, 30 doz., \$24.00	
Wentworth's Rubber Jaw, Nos. 1, 2 and 3, 30 doz., \$30.00	
Wood Workers—	
Massey Vice Co.: Lightning Grip, 15 doz., Perfect, 15 doz., \$15.00	
Wyman & Gordon's Quick Action, 6 in., \$6.00; 9 in., \$7.00; 14 in., \$8.00	
Miscellaneous—	
Holland's Combination Pipe, 60 doz., \$60.00	
Massey's Quick Action Pipe, 40 doz., \$40.00	
Parker's Combination Pipe, 40 doz., \$40.00	
87 Series, 60 doz.; 187 Series, 60 doz.; No. 870, 40 doz.	
Wads—Price per M.	
B. E., 11 up, 60 doz., \$60.00	
B. E., 9 and 10, 70 doz., \$70.00	
B. E., 8, 80 doz., \$80.00	

